STRAITS SETTLEMENTS.

ANNUAL REPORT

ON THE

MEDICAL DEPARTMENT

FOR THE YEAR

1929

BY

A. L. HOOPS, M.B., D.P.H., B.A.,
Principal Civil Medical Officer, Straits Settlements.

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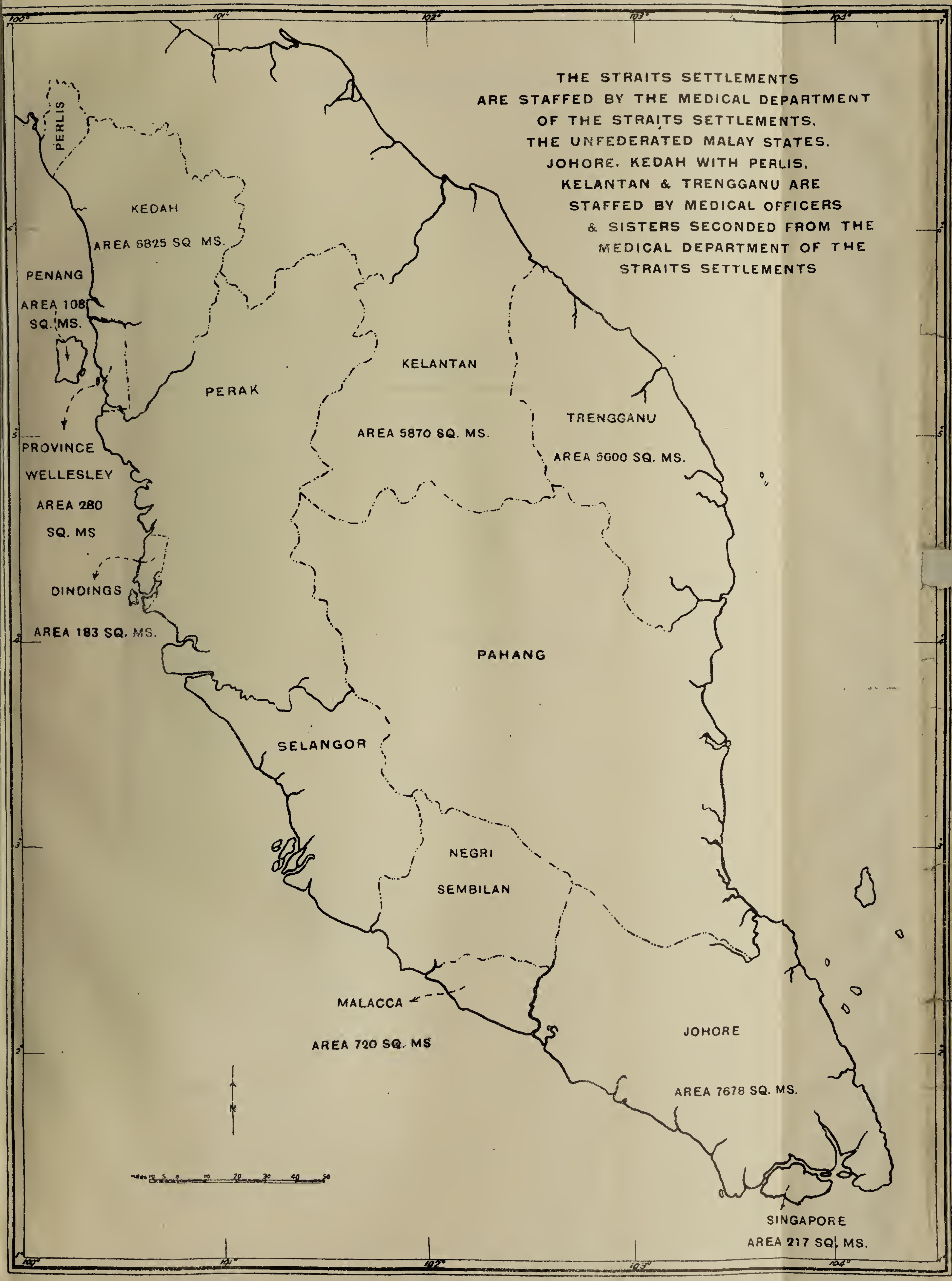

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The Straits Settlements Medical Report for the year 1929.

I.—ADMINISTRATION

(*a*).—STAFF

1. The authorised number of the European staff of the Medical Department of the Straits Settlements in 1929, including officers to be seconded for service in the Unfederated Malay States, was 179.

2. The following officers were promoted to the posts mentioned during the year:—

Name	*Previous Post*	*Appointment*	*With effect from*
Dr. L. W. Evans	Time-scale Medical Officer, S. S.	Chief Medical Officer, Kelantan	1-1-1929
Dr. J. I. Baeza	Time-scale Health Officer, S. S.	Senior Health Officer, Kedah	9-6-1929
Dr. W. J. Moir	Time-scale Health Officer, F. M. S.	Senior Health Officer, Johore	9-6-1929

3. Dr. H. O. Hopkins, Malaria Research Officer of the Institute of Medical Research, Kuala Lumpur, was transferred to the Straits Settlements as Bacteriologist, Singapore, and assumed duty as acting Pathologist, Penang, on 9th August, 1929.

4. The following officers were appointed to the service during the year:—

Name	*Appointment*	*Date of appointment*
*Dr. W. M. Lupton	Medical Officer, Social Hygiene	1st January, 1929
Dr. G. H. Swapp	Medical Officer	7th March, 1929
Dr. L. F. Day	,, ,,	5th April, 1929
Dr. R. A. McNab	,, ,,	9th August, 1929
Dr. A. H. Lowther	,, ,,	9th August, 1929
Dr. G. H. Lowe	Health Officer	9th August, 1929
Dr. W. G. Evans	Medical Officer	9th August, 1929
Dr. R. F. Pinson	Health Officer	9th August, 1929
Mr. E. K. Tratman	Professor of Dental Surgery	16th October, 1929
*Dr. (Mrs.) E. McMullan	Lady Medical Officer	5th November, 1929
Dr. D. Russell	Assistant Medical Superintendent, Mental Hospital	29th November, 1929

---

*Temporary officers.

5. The following officers proceeded on leave during the year:—

Name	*Appointment*	*Date*
Capt. K. B. WILLIAMSON	Professor of Biology, Singapore ...	2nd January, 1929
Dr. L. S. O'MAY ...	Lady Medical Officer, Penang ...	28th February, 1929
Dr. G. H. GARLICK ...	Physician and Radiologist, Johore ...	8th March, 1929
Mr. H. GILMOUR ...	Lay Superintendent, Pulau Jerejak ...	9th March, 1929
Dr. W. M. CHAMBERS ...	Chief Medical Officer, Penang ...	6th April, 1929
Dr. N. G. COOPER ...	Health Officer, Singapore	11th April, 1929
Dr. J. W. SCHARFF ...	Senior Health Officer, Penang	26th April, 1929
Dr. J. S. E. MANLEY ...	Medical Officer, Kedah	18th May, 1929
Dr. G. H. MACALISTER	Principal, College of Medicine, Singapore	30th May, 1929
Dr. J. H. BOWYER ...	Medical Officer, Labuan	27th June, 1929
Mr. W. JONES ...	Senior European Attendant, Singapore	27th June, 1929
Dr. R. B. MACGREGOR	Chief Medical Officer, Malacca	29th June, 1929
Dr. N. H. HARRISON ...	Chief Medical Officer, Trengganu ...	16th July, 1929
Dr. J. A. COWAN ..	Pathologist, Penang ...	27th July, 1929
Dr. J. S. WEBSTER ...	Radiologist, Singapore	9th August, 1929
Dr. S. W. EVESON ...	Health Officer, Malacca	23rd August, 1929
Dr. S. WINSTEDT ...	Lady Medical Officer, Singapore ...	17th November, 1929

6. The following officers returned from leave during the year:—

Name	*Appointment*	*Date*
Mr. E. O'SULLIVAN ...	Lay Superintendent, Pulau Jerejak ...	22nd February, 1929
Mr. J. KERR ...	Senior European Attendant, Singapore	24th March, 1929
Dr. J. C. CARSON ...	Medical Officer, Singapore	21st August, 1929
Capt. K. B. WILLIAMSON	Professor of Biology, Singapore ...	21st September, 1929
Dr. G. H. GARLICK ...	Physician and Radiologist, Johore ...	1st October, 1929
Dr. L. S. O'MAY ...	Lady Medical Officer, Penang	10th October, 1929
Mr. H. GILMOUR ...	Lay Superintendent, Pulau Jerejak ...	13th November, 1929
Dr. W. M. CHAMBERS	Chief Medical Officer, Penang	28th November, 1929

7. The following officers retired or resigned from the service during the year:—

Name	*Appointment*	*Date*
Dr. A. S. M. Douglas	Medical Officer, Kedah	10th April, 1929 (agreement expired)
Dr. A. B. Jesser-Coope	Temporary Medical Officer, Johore	30th April, 1929 (retired)
Dr. J. A. P. Cullen	Temporary Health Officer, Johore	1st August, 1929 (resigned)
Dr. K. M. Hyslop	Lady Medical Officer, Kedah	1st August, 1929 (resigned)
Dr. J. S. E. Manley	Medical Officer, Kedah	18th August, 1929 (resigned)
Dr. J. A. W. Ebden	Medical Officer, Kedah	7th October, 1929 (agreement expired)
Dr. N. M. H. Clarke	Temporary Lady Medical Officer, Singapore	14th October, 1929 (resigned)
Dr. D. I. Gracey	Medical Officer, Penang	7th December, 1929 (agreement expired)

8. The following officers were seconded for service in the Unfederated Malay States during the year:—

Name	*Appointment*	*Date*
Dr. K. M. Hyslop	Lady Medical Officer, Kedah	22nd March, 1929
Dr. R. Walkingshaw	Medical Officer, Kedah	9th April, 1929
Dr. J. V. Landor	Medical Officer, Johore	1st May, 1929
Dr. T. C. Lonie	Acting Chief Medical Officer, Trengganu	1st June, 1929
Dr. G. H. Lowe	Health Officer, Johore	7th September, 1929
Dr. G. H. Swapp	Health Officer, Kelantan	29th September, 1929
Dr. L. F. Day	Medical Officer, Kedah	2nd October, 1929

9. *European Matrons and Sisters.*—Miss G. D. Trevor-Smith was promoted Matron, Grade II, Singapore, from 1st September, 1929.

Miss K. M. Hill was promoted Matron, Grade II, from 6th October, 1929.

The number of Matrons and Sisters in the service, including those seconded to the Unfederated Malay States, was 90 in 1929.

10. The local medical service numbered 73, mostly graduates of the King Edward VII College of Medicine, Singapore.

Of these, four filled specialist posts:—

Dr. J. H. L. Westerhout	Port Health Officer, Penang.
Dr. A. H. Wheatley	Medical Superintendent, Leper Settlement, Pulau Jerejak.
Dr. A. C. Dutta	Surgeon and Officer in resident charge of Durian Daun Hospital, Malacca.
Dr. V. H. Norris	Physician, General Hospital, Singapore.

Eight others held responsible prize appointments.

(*b*) REVIEW 1921—1929

11 A short review of the increase in work done, and of additions to staff, since 1921, is informative.

Hospitals and Dispensaries.—Hospital inpatients in 1921 totalled 41,309 of whom 2,184 were first or second class patients: the corresponding numbers for 1929 were 69,310 and 7,933.

The facilities for specialism have been greatly increased and the various specialist departments are well equipped.

The lot of the leper has been much ameliorated by modern methods of administration and treatment; a number have either been cured or rendered comparatively healthy, and the leper death rate has been much decreased.

Outpatients treated in 1921 numbered 43,070: in 1929, the number had risen to 254,219, who made 643,450 attendances.

There are now motor travelling dispensaries in every settlement.

Mental Hospital:—The daily number of insane patients confined in Mental Hospitals at the end of 1921 totalled 599 (of whom 200 were by arrangement kept in the Federated Malay States establishment at Tanjong Rambutan).

Insane patients numbered 1,079 at the end of 1929, all of whom were accommodated in the new Mental Hospital at Trafalgar, Singapore. Corresponding figures for inmates of our *Leper Settlements* were 559 (end of 1921) and 1,076 (end of 1929).

Health Branch.—The methods of the Port Health Service have stood the test of time, and its efficiency has been increased by the foundation in Singapore in 1925 of the League of Nations Health Section Eastern Bureau, for the early collection and dissemination of epidemiological intelligence.

A Sanitary Inspectors' training centre, open to all administrations in Malaya, was started in Singapore in 1921, and arrangements were made with the Royal Sanitary Institute to confer their certificate upon successful candidates. One hundred and sixty-five sanitary students have attended the course since that date, of whom 117 have secured this certificate.

Special anti-mosquito votes for rural anti-malarial work, provided by Government since 1921, have rendered some areas healthy which were hardly habitable.

The supervision exercised over estates and factories has been increased, and joint anti-malarial and sanitary schemes have been carried out by Government and estates in several instances.

The work initiated during the 3 years joint hookworm and rural sanitation campaign undertaken conjointly with the Rockefeller Foundation in 1926 to 1928 is now carried on as one of the ordinary services of the health branch.

The provision of latrines and of scavenging gangs in the more populous rural areas is progressing steadily.

Water supplies have been improved and extended in all parts of the country.

School medical inspection, inaugurated on a part time basis in 1921, now occupies the whole time of a male and a female health officer in Singapore; elsewhere, it is still part time.

The foundation of a school dental service is under consideration.

A social hygiene branch of the Medical Department, started in 1926, to combat venereal diseases both by treatment and propaganda, now employs two whole time European and six whole time locally qualified officers.

Two hundred and thirty eight thousand six hundred and forty-eight outpatient attendances were made at social hygiene clinics in 1929.

Government Public Health Sisters were first employed in 1925 to undertake general maternal and child welfare work in rural areas, to supervise local midwives, and to train Asiatic girls to work under their supervision as public health nurses. Their duties are mainly educational and preventive, but they also carry out simple treatments. There were 75,907 attendances at welfare clinics, and 269,719 visits were paid to homes in the Colony in 1929: these include the Municipal figures.

Health publicity has been developed by means of house to house visits, public lectures, including lectures in schools, lantern slides and cinematograph demonstrations, pamphlets, leaflets, and posters, more especially in connection with maternal and child welfare, and the prevention of malaria, hookworm, and venereal diseases.

Medical Education.—As regards medical education, the scope and standard of work in the King Edward VII College of Medicine conform completely to the requirements of the general medical council of Great Britain, as certified by the Council's visitor in 1927. Professorial chairs of biology, bacteriology and biochemistry (the two latter endowed by the Rockefeller Foundation) were founded in 1926. The College has now a strong staff, and includes the only Dental School in the British Crown Colonies.

In addition to teaching, promising research is being undertaken in the College. A grant of £6,000 has recently been promised by the Empire Marketing Board in aid of nutritional research.

The Sanitary Inspectors' School has already been mentioned.

Two Schools for the instruction of Dressers are run in connection with the two large free hospitals in Singapore and Penang.

Probationer Nurses receive a 4 years' training, including one year's maternity work, in the General Hospitals at Singapore and Penang. After undergoing the necessary courses and examinations, a passed probationer receives a certificate from the Hospital in respect of her general training, and from the Central Midwives Board in respect of her midwifery training, and is then entitled to a Registration Certificate qualifying her to practice as a trained nurse in Malaya.

The training, registration and control of midwives, is vested in the Central Midwives Board formed in 1923, of which the Professor of Midwifery in the College of Medicine is Chairman. The training for the Diploma of the Board is similar to that for the C. M. B., certificate in Great Britain, and covers one year. The examination is partly written, partly oral and practical. Successful candidates are registered in Class *A* with Sisters from home who hold the C. M. B. There is also a course of training for the Certificate of the Board, planned for Asiatic women whose education is insufficient to undertake the Diploma course. The examination is entirely oral and practical, and successful candidates are registered in Class *B*.

Buildings.—Most of the medical institutions in the Colony have been either rebuilt or renovated. For instance, the College of Medicine, the General Hospital and the Mental Hospital, the Convalescent Home, the male and female leper settlements and four of the dispensaries in Singapore are new. The Singapore Free Maternity Hospital and the male and female dispensaries adjoining it, are about to be rebuilt, and a Tuberculosis hospital is sanctioned. Modern sanitation and new disinfectors are to be installed at the Quarantine Station on St. John's Island.

In Malacca, two new district hospitals and a town dispensary have been built, and the erection of a new General Hospital is sanctioned.

In the Settlement of Penang, the General and District Hospitals are being rebuilt to form one large thousand bed hospital.

The Penang Maternity Hospital has been greatly improved; a large venereal clinic is being erected.

The four district hospitals in Province Wellesley and the Dindings are being enlarged and modernised. The accommodation at the male settlement, Pulau Jerejak, which is now capable of housing nine hundred lepers, has been doubled. The latest buildings are all small separate huts, in each of which 2 or 3 lepers can live and tend their adjoining gardens.

Increase in personnel.—The number of the Malayan Medical Service, borne on the establishment of the Straits Settlements, has increased from 58 to 80. Of these, the members borne on the Straits Settlements estimates have gone up from 46 in 1921 to 58 in the sanctioned estimates for 1930, an addition of 12. Of the new posts, 5 are in the College of Medicine, the whole time professorial staff of which has been enlarged from 6 to 11, by the addition of professors of biology, biochemistry, bacteriology, clinical surgery and dentistry: other new appointments, since 1921, include a whole time radiologist for Singapore, a superscale surgeon for Penang, a chief medical officer and a medical officer for social hygiene, and three additional supernumerary medical and health officers for leave relief. The health branch in the Straits Settlements has been much strengthened by a rearrangement of medical and health posts, without any addition to the number of serving time scale officers. During the same period, the number of members of the Straits Settlements Medical Department employed in the Unfederated Malay States, has risen from 12 to 22: the increase is mainly due to the formation of separate health branches, with 4 whole time health posts in Johore, 2 in Kedah and 1 each in Kelantan and Trengganu, as against none in 1921. There are now also posts for lady medical officers in both Johore and Kedah. The medical department in Trengganu was only started in 1922, and in Brunei in 1929. The numbers of officers in the local medical service of the Straits Settlements have increased during the same period from 44 to 73; four are employed in the specialist grade and eight in the prize grade in the more responsible posts, most of which would have been filled formerly by members of the Malayan Medical Service. Six members of the local service are employed in the social hygiene branch, which was only established in 1926: eight are employed in the health branch against three, and six in the College of Medicine against three in 1921.

Miscellaneous European male appointments have increased from 11 to 16. These include an accountant, medical department, a secretary, General Hospital, Singapore, a dispensing chemist, 2 chief sanitary inspectors, 6 male attendants, 3 lay superintendents, a dental mechanic and a janitor.

Turning to the Nursing Staff, matrons have increased from 6 in 1921 to 13 in the sanctioned estimates for 1930: 2 of the new appointments are in the Unfederated Malay States. Nursing Sisters have increased from 33 to 85, of whom 15 are serving in the Unfederated Malay States, and health sisters from nil to 5, of whom one is in an Unfederated Malay State.

In the local nursing service, there are 8 senior staff nurses, a new grade created in 1928 (7 in the hospitals and 1 in the health branch), 25 staff nurses in the hospitals and 7 in the health branch, a total of 40 against a total of 16 in 1921. The number of probationer nurses has advanced during the same period from 38 to 115.

Hospital assistants and dressers have increased from 169 to 280.

In the health branch of the Straits Settlements, Asiatic sanitary inspectors have increased from 6 to 25.

Each of the Unfederated States has its own service of locally appointed candidates, whether assistant medical officers, nurses, hospital assistants, dressers or sanitary inspectors: these are not transferable, with the rare exception of a few persons who have been seconded from the Straits Settlements.

I cannot close this review without expressing my thanks to Government for the sympathetic ear given to proposals for the better care of the sick and for the improvement of public health, which have involved the provision of large sums of money.

(*c*).—ORDINANCES

No ordinances affecting Public Health were enacted during the year.

(*d*) FINANCIAL

The actual medical and sanitary expenditure and the revenue collected in the various settlements were:—

EXPENDITURE

	$	c.
Singapore	2,206,046	37
Penang	1,093,978	67
Malacca	296,592	53
Labuan	24,075	17
Total ...	$3,620,692	74

REVENUE

Of the expenditure $706,154.51 was spent on the Health Branch and $175,368.00 on the College of Medicine, Singapore.

It is to be remembered that in addition to the above the Health Services of the Municipalities spent:—

	$	c.
Singapore	862,453	08
Penang	165,200	28
Malacca	29,578	12
Total ...	$1,057,231	48

The total revenue of the Colony was $36,066,168.00.

Further particulars are given in Table II page 89.

II.—PUBLIC HEALTH

(*a*).—GENERAL REMARKS

(*a*) A consideration of the monthly mortality figures in the Straits Settlements for the last five years is instructive – 1925 a healthy year – 1926 and 1927 unhealthy throughout – 1928 showing a welcome return towards better conditions – and the year under review which is the healthiest on record: —

	1925	*1926*	*1927*	*1928*	*1929*
January ...	2,054	2,579	2,734	2,577	2,571
February ...	1,857	2,141	2,536	2,219	2,139
March ...	1,991	2,458	2,792	2,401	2,410
April ...	2,099	2,762	2,891	2,615	2,307
May ...	2,457	3,340	3,164	3,004	2,734
June ...	2,245	3,227	3,121	2,921	2,629
July ...	2,208	3,038	3,301	2,980	2,571
August ...	2,298	2,740	3,167	2,495	2,302
September ...	2,332	2,504	2,975	2,496	2,323
October ...	2,514	2,588	3,213	2,524	2,443
November ...	2,463	2,534	2,907	2,607	2,482
December ...	2,588	2,722	2,760	2,677	2,633
Total deaths ..	27,106	32,633	35,561	31,516	29,544
Estimated population ...	994,266	1,025,835	1,059,968	1,095,635	1,131,903
Death-rate per thousand ...	27·26	31·81	33·55	28·76	26·10

The death-rate for Singapore Settlement in 1929 was 25·84, for Malacca Settlement 24·52, for Penang Island 28·69 and for Province Wellesley 25·65.

It is to be noted that the rainfall in all settlements was somewhat below the average—in Singapore 2,009.27 m.m., in Malacca 2,231 m.m., in Penang 2,399 m.m. – and that deficient rainfall in most years connotes an increased death-rate.

The death-rate in the Municipal area of Singapore fell from 28·44 per thousand in 1928 to 26·21 in 1929 which is the lowest yet recorded. Six hundred and twenty-six of those who died were resident less than 3 months in Singapore. Deducting these, the Singapore Municipal death-rate is 24·91 per thousand.

There were 293,167 Chinese immigrants during the year; 139,967 Chinese deck passengers returned to China.

Indian immigrants totalled 114,252. Against these, 76,649 deck passengers returned to India.

The infantile death-rate 181·92 per thousand is the lowest yet recorded.

(*b*) The deaths registered in the Straits Settlements are divided as regards Certificates as follows:—

Deaths registered in the Straits Settlements as regards certificates in the year 1929.

Particulars	*Singapore*	*Penang*	*P. Wellesley*	*Dindings*	*Malacca*	*Labuan*	*Total*
Died in Hospitals ...	3,038	1,073	488	126	298	14	5,037
Certified by Outside Medical Practitioners ...	4,923	751	1	—	289	8	5,972
Certified by Registering Officers after death	4,016	2,403	8	—	458	21	6,906
Uncertified ...	2,874	1.263	3,133	376	3,859	124	11,629
Total	14,851	5,490	3,630	502	4,904	167	29,544

Less than 37 per cent of those dying are under the care of a registered medical practitioner before death and certified accordingly. Of the remainder, some 23 per cent are certified by qualified registering officers who inspect the body after death, or by a coroner. In some 40 per cent, the cause of death is uncertified, and is guessed by a subordinate police officer from the statements made to him by the relative or friend of the deceased who reports the death. The relative inaccuracy of the stated causes of death will be realised from these facts.

In the Municipality of Singapore a higher standard of accuracy is attained than in the rest of the Colony, for 66 per cent of deaths are certified by registered medical practitioners who have attended the deceased, 28·9 per cent by qualified registrars inspecting after death, 4·8 per cent by the coroner and only 0·3 per cent are uncertified.

I have, therefore, quoted a number of figures from the report of the Municipal Health Officer, Singapore, to whom my indebtedness is acknowledged.

(*b*).—GENERAL DISEASES

1. *Beri-beri.*—The deaths registered as due to Beri-beri in the last 19 years are:—

Year	*Number of deaths*	*Year*	*Number of deaths*
1911 (Census 714,069)	2,056	1920	1,025
1912	1,926	1921 (Census 881,930)	1,299
1913	1,657	1922	1,388
1914	1,483	1923	904
1915	1,079	1924	910
1916	1,075	1925	973
1917	2,075	1926	1.098
1918	1,958	1927	1.528
1919	1,430	1928	1,146
		1929 (Est. pop. 1,131,903)	944

Seven hundred and ninety-four of the deaths due to beri-beri occurred in Singapore. The majority contracted the disease elsewhere. The real death-rate from beri-beri is lower than the stated figures, for it is certain that some deaths due to affections of the central nervous system are returned as beri-beri. Since the food rationing in the years 1918 to 1921, which led to a less exclusive use of overmilled rice in the diet of the Chinese labouring class, beri-beri has not risen to the previous high figures, but there is still room for improvement.

The low figures in 1915 and 1916 were due to the repatriation of a large number of invalid Chinese, as a war measure.

2. *The Pneumonias.*—These very common diseases are increased by city conditions.

The Municipality of Singapore, which is estimated to contain some 43 per cent of the population of the Colony, returned 71 per cent of the total deaths from pneumonia. The total deaths under this head were 2,502 (1,770 in Singapore city) against 2,679 (1,806 in Singapore city) in 1928. Of the total 1,165, including a number of children, were classed as broncho-pneumonia.

3. *Convulsions.*—Nearly 16 per cent of the total deaths in the Colony were returned under this vague head, which comprises a variety of infantile disorders. "Sawan" the Malay equivalent of convulsions is one of the commonest causes of death reported. Numbers so registered were 4,692 (1,248 in Singapore city, of whom 1,073 were under one year of age) against 5,040 (1,171 in Singapore city) in 1928. In December 1929, the Municipal Health Officer, Singapore, instituted the examination of mouthswabs from all infants and children dying under 10 years of age, with the surprising result that the Diphtheria bacillus was identified in no less than 6 out of 53 examinations. Several of the six had been returned as "Convulsions". The results for 1930 will be awaited with interest. It would seem that in 1929 at any rate a considerable amount of diphtheria must have prevailed amongst the class who do not usually seek qualified medical aid for their sick children.

(*c*).—DANGEROUS INFECTIOUS DISEASES

The incidence of dangerous infectious diseases in the Colony was again low.

(1) *Plague.*—There were 3 cases of plague and 3 deaths (all in Singapore): figures for the three previous years are 7 (1926), 4 (1927) and 5 (1928).

No plague infected rats were found.

(2) *Cholera.*—No cholera occurred in the Colony during the year.

(3) *Small-pox.*—There were 19 cases and 2 deaths (of which 1 was imported).

Vaccinations.—Sixty-seven thousand nine hundred and forty vaccinations and revaccinations were performed as follows:—

Perfect	27,092
Modified	1,850
Failed	2,181
Not seen	36,817

(4) *Cerebro-spinal Meningitis.*—There were 3 cases and 3 deaths.

OTHER INFECTIOUS DISEASES

(*d*) *Tuberculosis* :—

(1) The distribution of Tuberculosis in the Colony proves that it is prevalent mainly in the three cities.

(2)

Year	*1928*	*1929*
Estimated population of the Straits Settlements	1,095,635	1,131,903
Total deaths from all causes ...	31,510	29,544
Death-rate per thousand ...	28.76	26.10
Total deaths from pulmonary tuberculosis	2,727	2,710
Pulmonary tuberculosis death-rate per thousand	2.49	2.30

(3)

Year	*Deaths from tuberculosis in the Colony*	*Deaths from tuberculosis in Singapore city*
1925	2,604	1,254
1926	2,526	1,570
1927	2,903	1,523
1928	2,727	1,411
1929	2,710	1,500

(4) Comparative prevalence of Tuberculosis in Urban and Rural areas, 1929:—

	Estimated Population	*Death-rate from all diseases per thousand*	*Number of deaths from Tuberculosis*	*Tuberculosis death-rate per thousand*
Singapore Municipality ...	479,723	26.21	1,500	Cities 3.1
George Town (Penang) Municipality ...	144,114	28.63	485	
Malacca Municipality ...	42,333	22.06	96	
Rural areas of Colony ...	465,733	25.56	629	Rural areas 1.3

(5) Though the death-rate from Tuberculosis is inclined to fall, it is still very high in urban areas.

(6) Amelioration of the conditions of the life of the poor, and especially as regards housing, is the most important preventive measure. Housing improvement schemes are in operation in the cities of Singapore and Malacca, and may be introduced in the city of Georgetown (Penang). These schemes will, it is hoped, lead to the early abolition of congested tenement houses, and, in particular, of ill-lighted and ill-ventilated cubicles.

(7) Separate hospital provision for advanced cases of tuberculosis exists in most hospitals, but the provision of one or two separate hospitals for such cases is desirable; a start will probably be made in Singapore this year. Compulsory isolation of the dangerously infective is not yet practicable.

(8) As regards the early case, facilities for treatment exist in the General Hospital, Singapore, and will shortly be provided at the General Hospitals in Penang and Malacca. His Excellency the Governor favours the erection of one Central Tuberculosis Sanatorium for the whole of Malaya: the most suitable site for this is now being sought.

(9) With the sustained diminution of overcrowding in the cities by the operation of improvement schemes, the establishment of Municipal Tuberculosis Clinics for the detection and education of the early case, should now be

seriously considered. Such institutions would also select cases suitable for sanatorium treatment.

(10) The stricter control of immigration, if possible, is very desirable.

(11) The teaching of hygiene in schools and child welfare centres is a useful adjunct against this disease.

(12) Representations have been made to the Colonial Medical Research Committee, London, as to the desirability of awarding to a scientific worker a research travelling fellowship for the study of the prevention and treatment of tuberculosis in the Straits Settlements.

(*e*).—MALARIA

In considering malaria, deaths registered as "unspecified fever" some of which are due to malaria, must be taken into account.

Figures for the past 5 years are:—

Year	*Malaria*	*Fever unspecified*	*Total*
1925	4,235	2,043	6,278
1926	6,452	2,398	8,850
1927	6,283	2,161	8,444
1928	5,798	1,636	7,434
1929	4,648	1,764	6,412

Allowing for the increase of population, the present figures are probably the best recorded. As against the previous year, there is a decrease in Penang Island from 1011 to 582, and in Province Wellesley, from 1626 to 1327: figures for the Settlement of Malacca 1370 against 1367 remain unchanged: for the Settlement of Singapore, there is a decrease from 1436 to 1179, of which 1080 deaths took place in Singapore city. The Municipal Health Officer, Singapore, points out that, in his opinion, less than 14 per cent of these were infected in Singapore city. In this connection, the Singapore hospital malaria admission figures, which totalled 4,024 for 1929, are informative: 1923 of those admitted were resident in Singapore city, but it seemed likely that many of them had contracted the infection outside municipal limits: 664 were from rural Singapore, 801 from the State of Johore, and 196 from Dutch Islands near Singapore: the home address of the remaining 284 was uncertain.

(*f*).—BOWEL DISEASES

(1) *The Dysenteries* were responsible for 673 deaths against 902, 1,096, 1,015 and 857 deaths in the four previous years.

(2) *Diarrhœa and Enteritis* caused 1,380 deaths of which 766 were in children under 1 year of age, against 1,230, 1,409, 1,169 and 1,043 deaths in the four previous years.

(3) *Enteric Fever*:—

Year	*Deaths in the Colony*	*Cases notified in Singapore Municipality*
1925	100	136
1926	120	197
1927	188	235
1928	174	230
1929	118	133

The return of cases notified in Singapore Municipality supports the supposition that enteric fever is not a common disease: the enteric mortality has never been high in the Colony.

(*g*) *Diphtheria*:—

Year		*Deaths in the Colony*	*Cases reported in Singapore Municipality*
—		—	—
1925	... ...	24	51
1926	... ...	15	46
1927	... ...	16	29
1928	... ...	21	59
1929	... ...	31	57

Reference to my remarks under the heading "convulsions" will show that there has been a considerable amount of undiagnosed diphtheria, at any rate in Singapore.

(*h*) *Scarlet Fever*.—There were 6 cases, all in Singapore, five amongst the children of newly-arrived soldiers, and one off a Dutch ship.

(*i*).—VENEREAL DISEASES

The attendances at venereal clinics and dispensaries numbered 238,648 against 182,561 in 1928. The ratio of total attendances to new cases was 8·98. Six hundred and forty-one seamen made 5,066 attendances.

During the year two meetings of the Social Hygiene Advisory Board were held, at which the majority of members voiced their objections to the policy of completely closing all brothels. The Board through Government in 1928 forwarded to the Secretary of State a resolution stating the Board's opposition to this policy. The Board also objected to certain clauses in the new draft of the Women and Girls' Protection Ordinance, 1930, and has made representations to Government concerning these.

Sir DAVID GALLOWAY resigned from the Board and the Bishop of Singapore joined it.

(For details of anti-venereal work *vide* Appendix G, page 78.)

(*j*).—LEPROSY

(1) It is with deep regret that I record the death on 17th February, 1930, of Dr. A. H. WHEATLEY, a prominent member of the local Medical Service, and Medical, Superintendent of the male leper settlement at Pulau Jerejak; he was an experienced physician and much beloved by the lepers. His annual report for 1929 was uncompleted but some of the usual details have been supplied by the Chief Medical Officer, Penang.

(2) The number admitted to institutions increased by 28 as against 12 in 1928.

		Remaining on 31/12/28	*Ad-mitted*	*Died*	*Abs-conded*	*Trans-ferred*	*Dis-charged*	*Remaining on 31/12/29*
		—	—	—	—	—	—	—
Men	Pulau Jerejak, Penang ...	772	218	105	35	—	3	847
	Singapore ...	50	69	6	—	80	5	28
Women	Penang ...	51	18	5	3	—	—	61
	Singapore ...	64	13	6	3	—	3	65
	Total ...	937	318	122	41	80	11	1,001

(3) *Treatment.*—Nearly all the lepers are voluntarily under treatment; the death-rate continues to decrease.

Year ...	1923	1924	1925	1926	1927	1928	1929
	—	—	—	—	—	—	—
Cases ...	888	891	996	1,070	1,111	1,147	1,255
Deaths ...	164	150	143	140	144	121	122

The pure expressed oil of Hydnocarpus and the preparation known as Alepol have given the best results.

Reports on Leper Settlements are attached. (*Vide* Appendices *A* and *B*. pages 46 to 50).

(*k*).—HELMINTHIC DISEASES

Ankylostomiasis.—The total number of primary ankylostomiasis cases treated as in-patients and of deaths therefrom in the hospitals of the Colony for the past five years is:—

Year	*Remained*	*Admitted*	*Total tracted*	*Deaths*
—	—	—	—	—
1925 ...	195	4,304	4,499	123
1926 ...	138	3,996	4,134	142
1927 ...	138	3,874	4,012	102
1928 ...	144	3,037	3,181	84
1929 ...	96	2,731	2,827	63

The rural Sanitation Campaign initiated in co-operation with the Rockefeller Foundation between the years 1926 and 1928 has been continued and extended by the Health Branch, and both the incidence and the severity of hookworm disease are lessening in the Colony.

(*l*).—IMPROVEMENT OF PUBLIC HEALTH

Two graphs and three diagrams numbered *I*, *II*, *III*, *IV* and *V* are enclosed. The graphs demonstrate the improvement in public health during the last generation.

I is a graph depicting the mean monthly death-rate in Singapore from all causes in the decennial periods 1904-1913 and 1914-1923 and in the six years 1924 to 1929. Material is not available to make such a graph for the whole Colony.

II is a graph giving a monthly comparison between the last two census years 1911 and 1921 and the year 1929. The improvement in the latter year is attributable more to anti-malarial measures than to any single other cause. The infantile mortality has dropped 50 per cent since 1911.

Diagrams *III* and *IV* and *V* explain themselves. It is not correct to state that every case of pneumonia is avoidable and many cases of convulsions, though not shewn as preventable, are preventable.

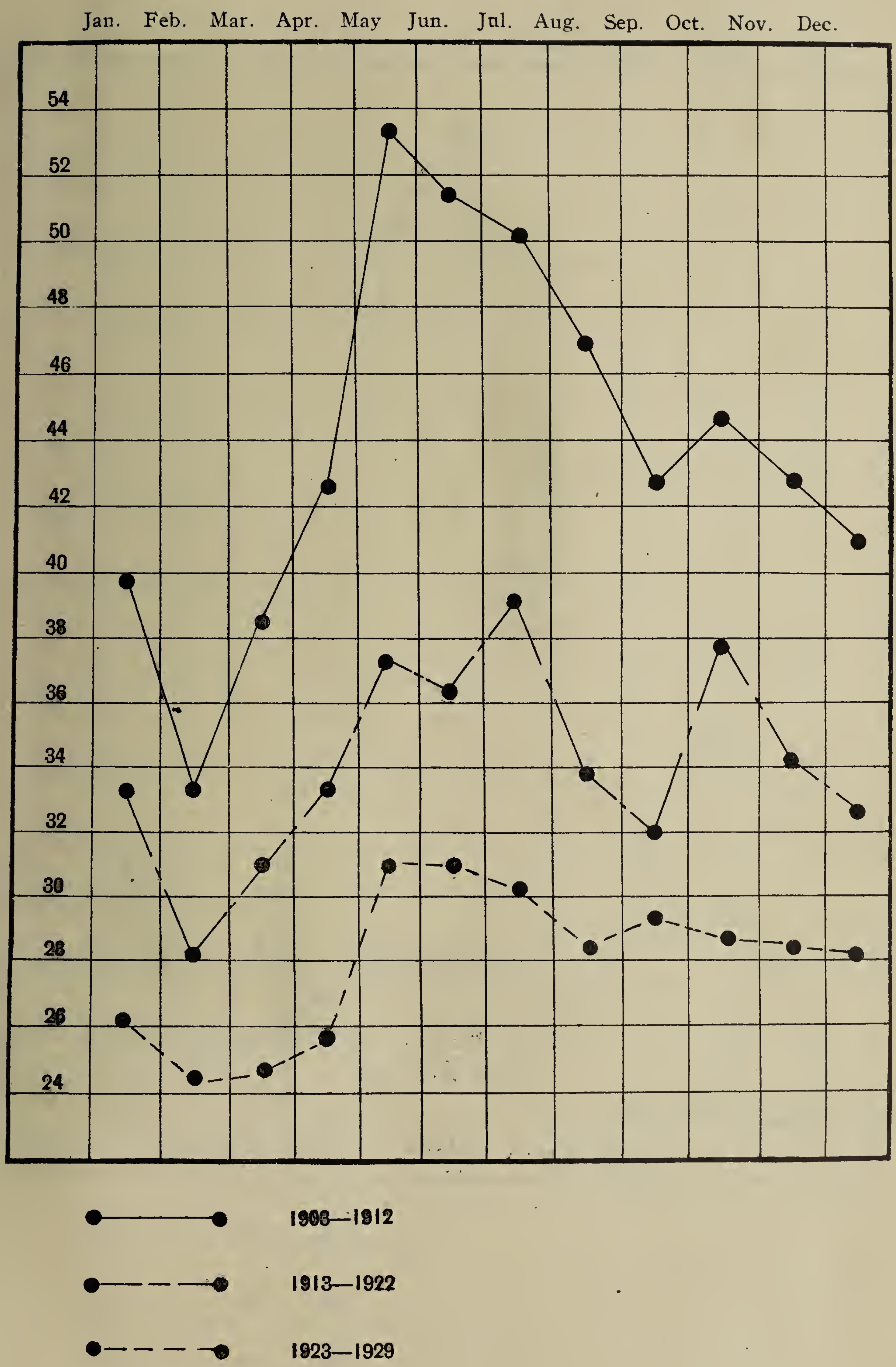
Nevertheless the diagrams do give an idea of the amount of disease and of death that is preventable.

Roughly it should be possible to lower the death-rate to 14 per thousand. In other words there is nothing inherently unhealthy in a tropical as opposed to a temperate climate.

I

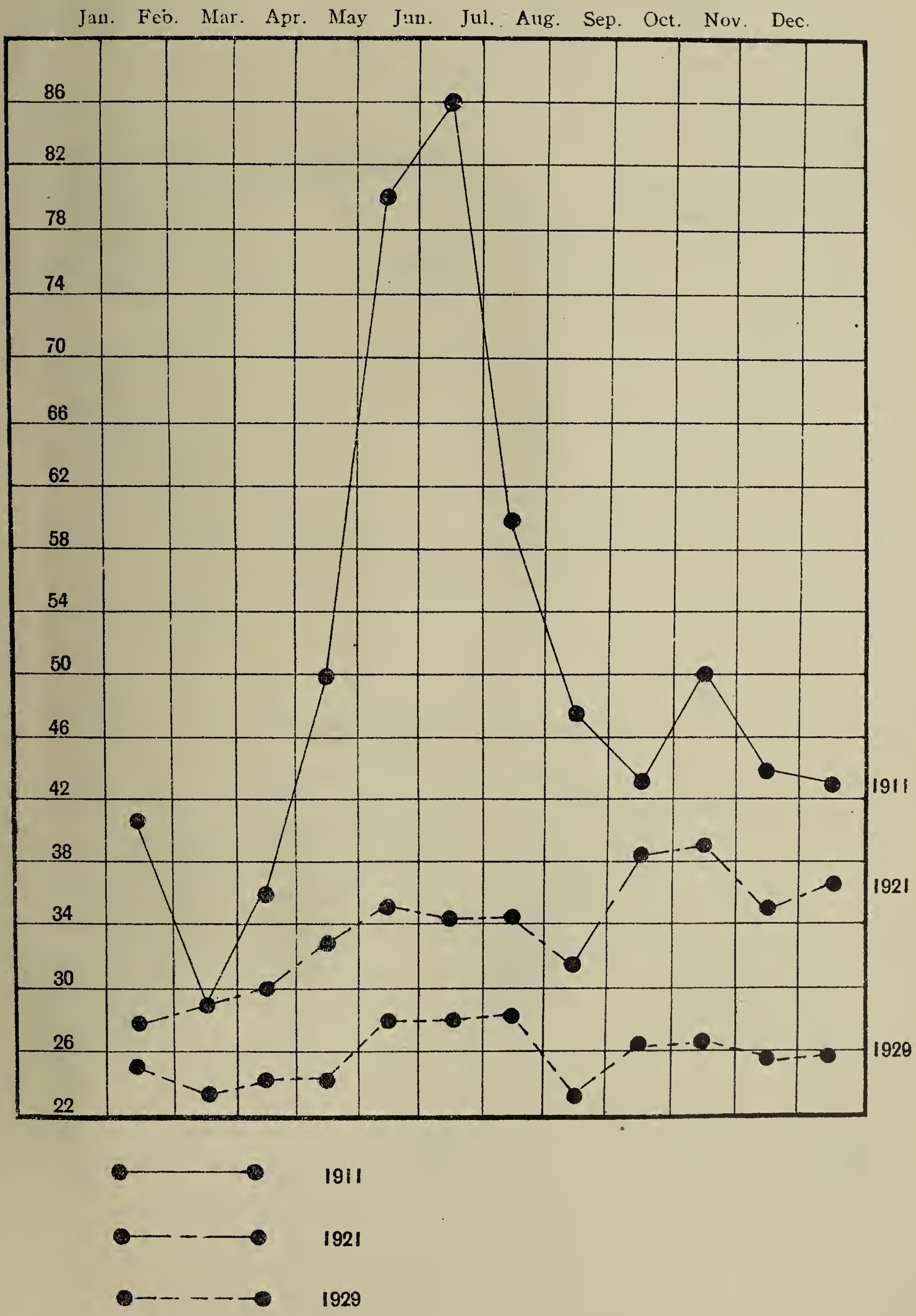
Singapore

Monthly Death-rate from all causes.

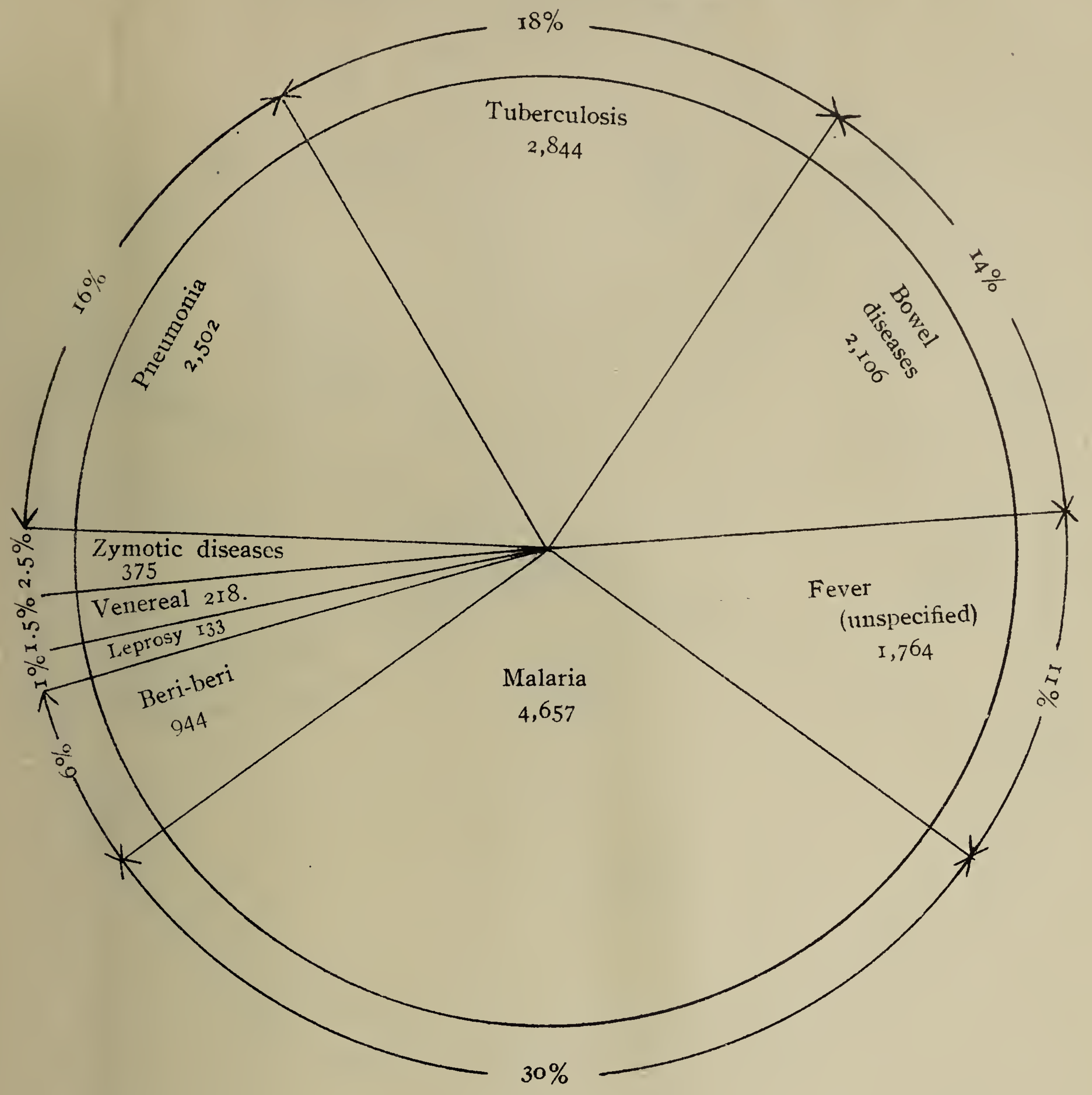


Singapore

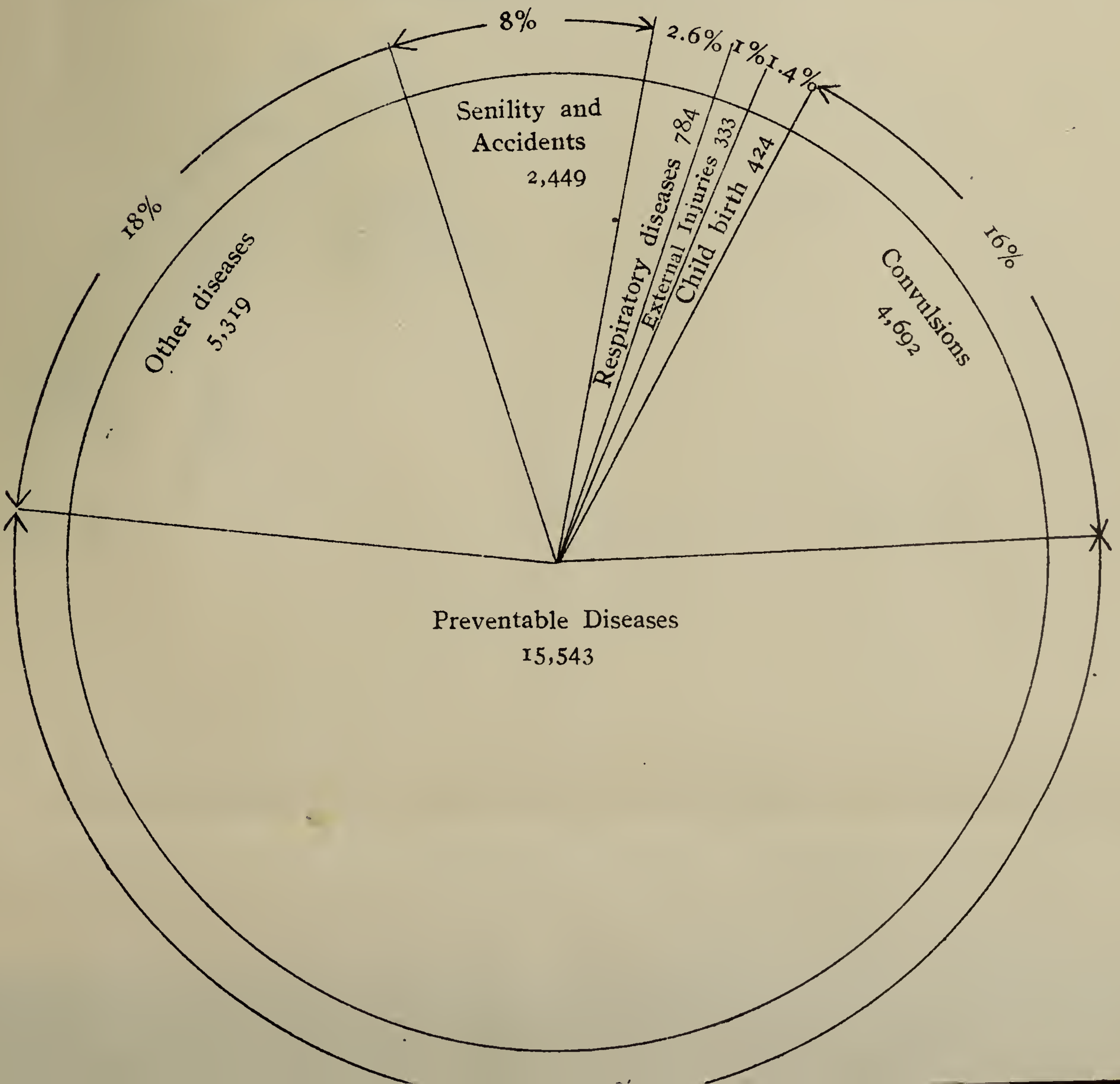
Mean Monthly Death-rate from all causes.



Deaths from Infective and Preventable Diseases registered in the S.S. in 1929
Total Deaths from Preventable Diseases—15,543.

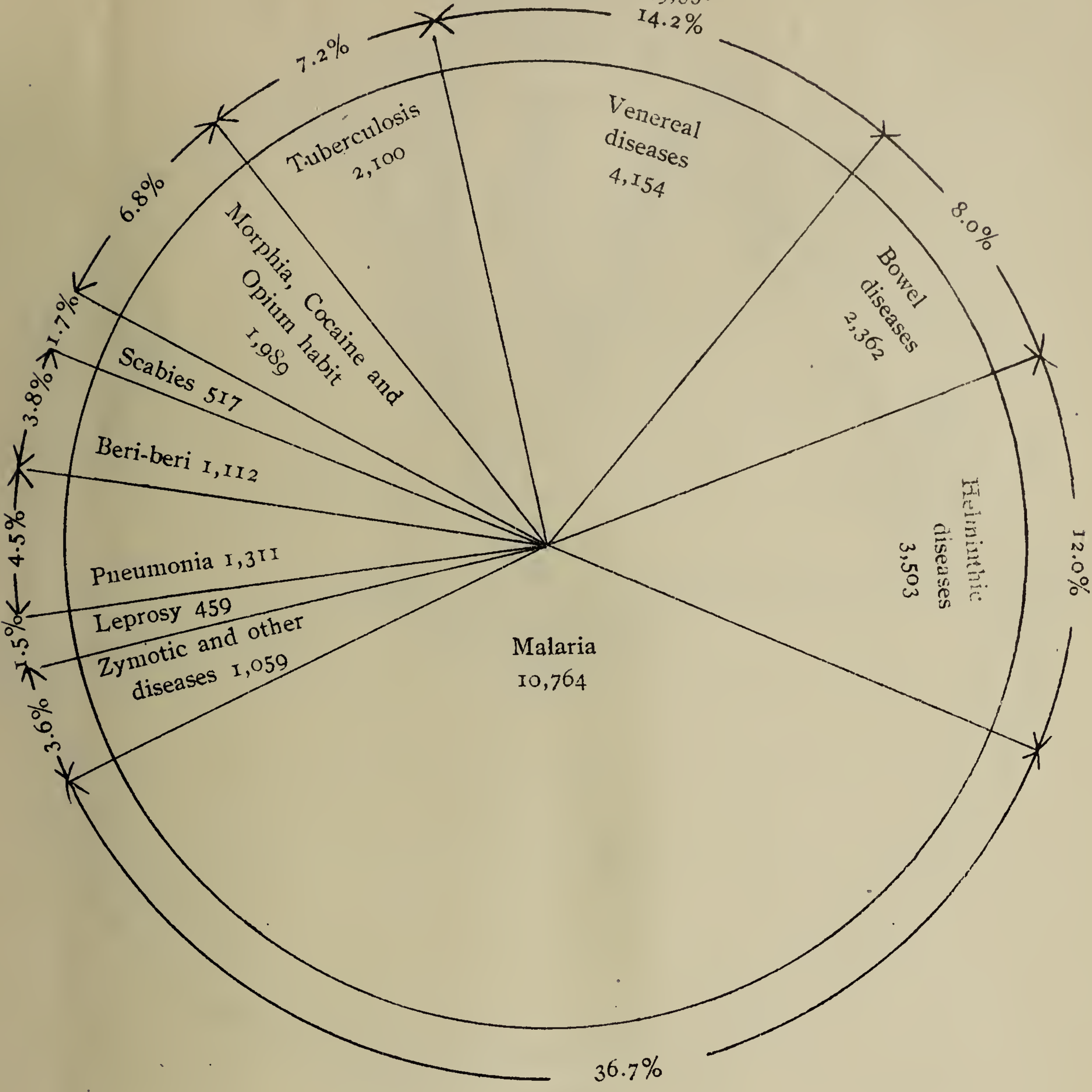


Total Deaths from all causes—29,544.

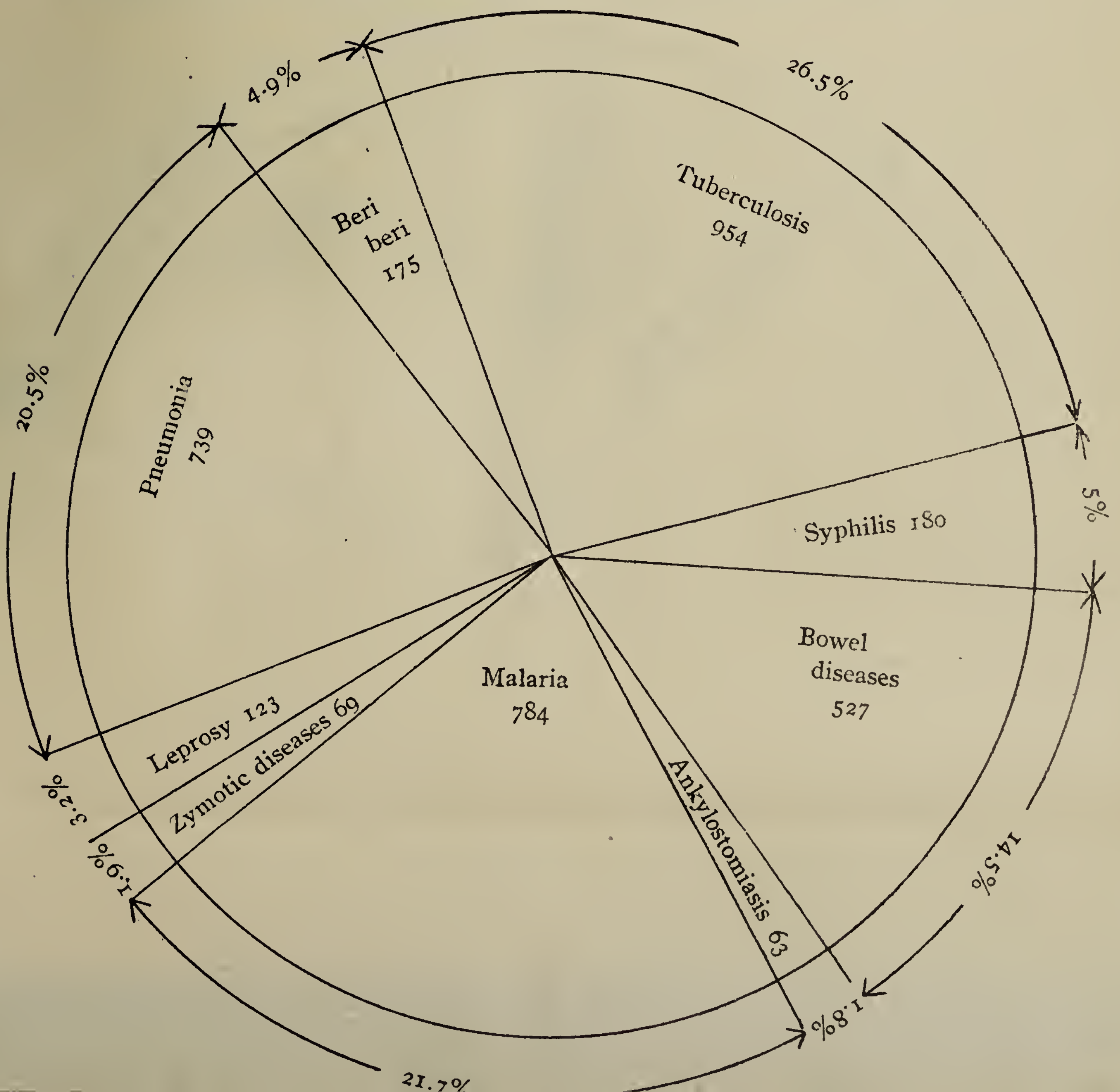


Infective and Preventable Diseases admitted to the S.S. Govt. Hospitals during 1929

Total cases—29,330

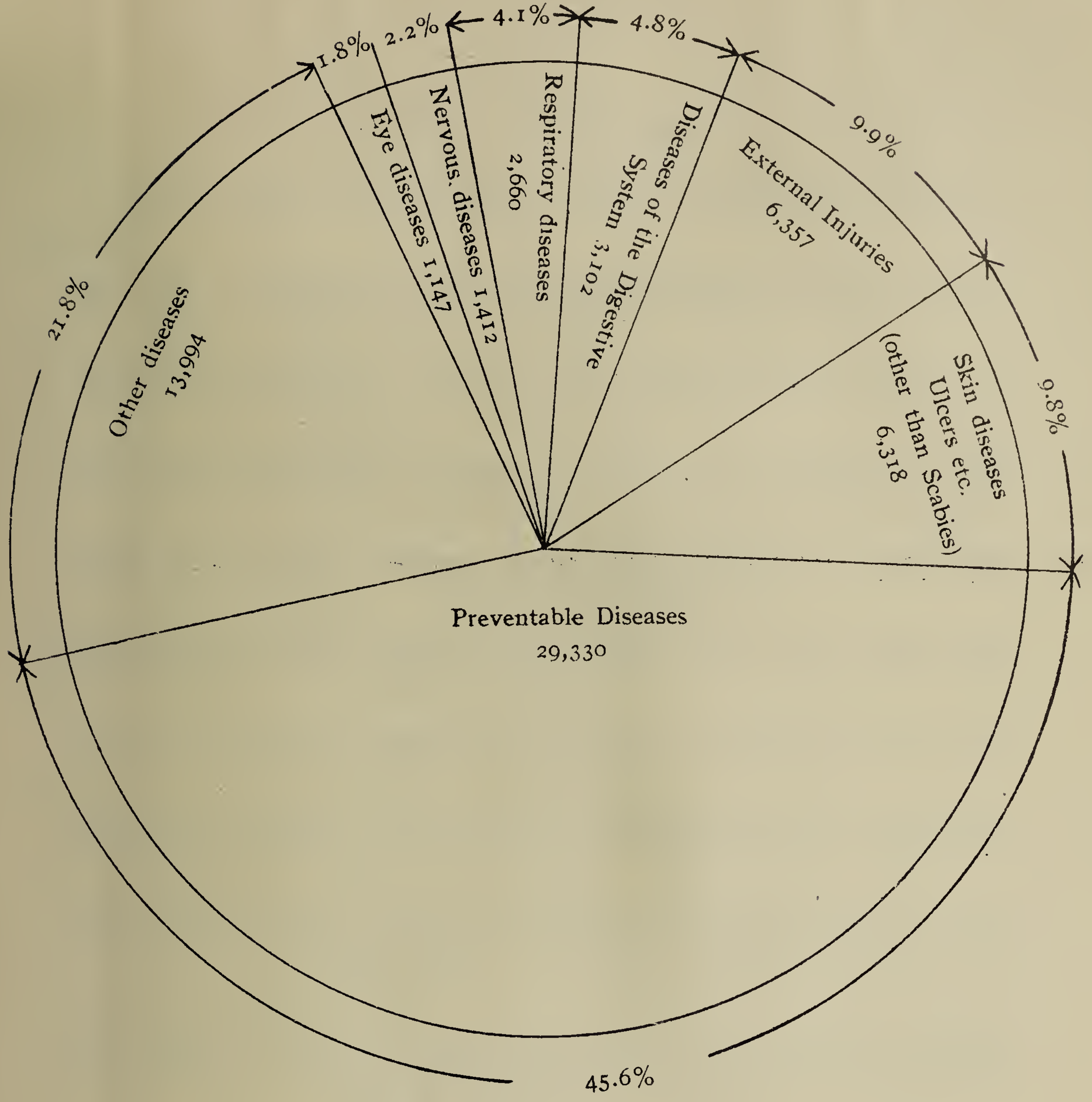


Total Deaths from Preventable diseases in the S.S. Government Hospitals—3,614

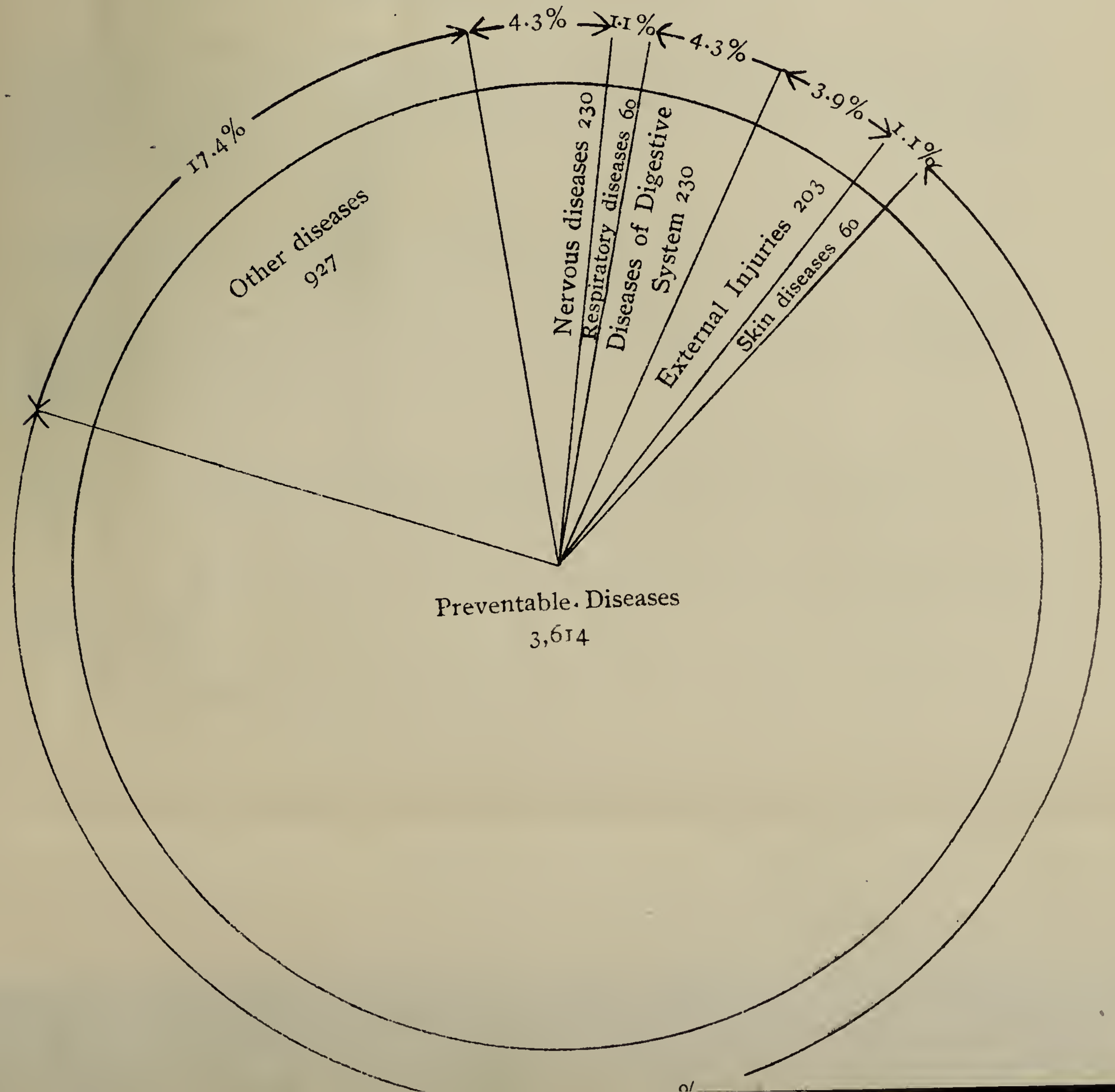


General Systemic and Preventable Diseases admitted to the S. S. Govt. Hospitals during 1929

Total Cases—64,320.



Total deaths from all causes in the S.S. Govt. Hospitals—5,324.



(*m*).—VITAL STATISTICS

1. Under heading Table III, pages 92 to 96, the following ten tables are appended—

Table III A.—Estimated population with birth and death-rates for the years 1928 and 1929.

Table III B.—Quarterly death-rates for various parts of the Colony during the past three years.

Table III C.—Population estimated racially and collectively of the Straits Settlements for the years 1929, 1928 and 1927.

Table III D.—Births registered in the Straits Settlements during 1929 and their ratio per mille of population.

Table III E.—Births registered in the Straits Settlements during 1929 according to Nationalities.

Table III F.—Deaths registered in the Straits Settlements during 1929 according to Nationalities.

Table III G.—Deaths registered in the Straits Settlements during 1929 under different groups of ages.

Table III H.—Table showing the Infantile Mortality (under one year) in the Straits Settlements including children born elsewhere.

Table III I.—Table showing the Infantile Mortality (under one year) in the Straits Settlements, according to Nationalities, excluding children born elsewhere.

Table III J.—Deaths registered in the Straits Settlements as regards certificates in the year 1929.

2. The number of births registered throughout the Straits Settlements during the year 1929 was 42,102 (males 21,982 and females 20,120) as against 39,479 (Males 20,528 and females 18,951) in the previous year: this represents a crude birth-rate of 37.20 per thousand persons living as compared with 36.03 in 1928 and 35.13 in 1927.

3. In every 100 births registered, there were 52.22 males and 47.78 females, giving a percentage of 91.75 females to every 100 males born.

4. One thousand eight hundred and thirty-one still births were registered in 1929 as compared with one thousand seven hundred and ninety-eight still births in the previous year—the percentage to those born alive was 4.35 as against 4.55 in 1928 and 4.79 in 1927.

5. The highest birth-rate according to nationalities was 40.94 per thousand of population amongst Malays, the Chinese coming next with a ratio 39.85 per thousand of population *vide* Table *III E.*

6. The deaths from all causes in 1929 were 29,544 (Males 18,660 and females 10,884) as against 31, 519 (Males 20,300 and females 11,216) in the previous year.

The average death-rate for the last 10 years is 29.81 per thousand.

Death-rates for the last 19 years:—

Year	*Ratio per mille*	*Year*	*Ratio per mille*
1911 (census) ...	... 46·46	1921 (census)	... 31·54
1912 ...	... 39·01	1922 ...	... 30·68
1913 ...	... 34·93	1923 ...	... 27·80
1914 ...	... 34·13	1924 ...	... 27·42
1915 ...	... 29·15 (*a*)	1925 ...	... 27·26
1916 ...	... 30·70	1926 ...	... 31·81
1917 ...	... 36·98	1927 ...	... 33·55
1918 ...	... 43·85 (*b*)	1928 ...	... 28·76
1919 ...	... 33·04	1929 ...	... 26·10 (*c*)
1920 ...	... 33·20		

The Municipal Health Officer, Singapore, reports the death-rate for that city as 26·21 per thousand against 28·44 and 33·08 in the two previous years. Six hundred and twenty-six persons died who had been less than three months resident in Singapore: deducting these the death-rate is reduced to 24·91 per thousand.

7. The highest racial death-rate in the Colony was classed under Chinese with a ratio of 27·42 per thousand of population, the Malays coming next with a ratio of 26·87 per thousand of population.

8. It is always difficult to assess the true infantile mortality. In illustration of this the figures for the Singapore Municipal area where registration is more accurate than elsewhere are quoted. Seventeen thousand five hundred and fifty-one children were born in this area, a birth-rate of 36·59 per mille. Infantile deaths numbered 3,467, a rate of 197·5 per 1,000 births. But a large number of infants arrived in the Colony during the same period, and it is certain that at least 4,000 of these remained in Singapore: an addition of this number would bring the Singapore City infantile death-rate down to about 160 per thousand.

9. Table shewing the sick, invaliding and deaths of European officials of all ranks:—

	1926	*1927*	*1928*	*1929*
(1) Total number of European officials on the establishment ...	672	689	698	822
(2) Average number resident in Colony	547	617	607·4	709·5
(3) Total number on sick list ...	257	246	427	433
(4) Total number of days on sick list	3,728	3,125	4,952	4,536
(5) Total number invalided ...	7	9	6	10
(6) Total deaths	5	3	4	2
(7) Total deaths in Colony ...	5	3	4	2
(8) Average daily number on sick list	·58	·57	·69	~~·67~~ 12·43
(9) Average number of days on sick list	10·21	12·7	11·62	10·47
(10) Percentage of deaths to number resident	·91	·48	·65	·28
(11) Percentage of sick to the average number resident during the year	47·35	39·87	70·29	61·02

(*a*) Repatriation of several thousands of decrepit Chinese as a war measure.
(*b*) Influenza Epidemic.
(*c*) Lowest recorded death-rate.

10. Table shewing the sick, invaliding and deaths of non-European officials:—

	1926	*1927*	*1928*	*1929*
(1) Total number on the establishment (*a*)	5,815	5,994	9,445	11,362
(2) Average number resident ...	5,577	5,252	8,961·4	10,776·8
(3) Total number on sick list ...	2,928	2,948	6,244	13,357
(4) Total number of days on sick list	23,966	38,708	49,728	69,292
(5) Total number invalided ...	45	64	132	235
(6) Total deaths	42	24	36	49
(7) Average daily number on sick list	·24	·57	1·25	~~2·67~~ 189·84
(8) Average number of days on sick list	8·18	6·5	7·96	~~9·76~~ 5·18
(9) Percentage of deaths to number resident	·73	·45	·40	·45
(10) Percentage of sick to number resident	52·50	56·11	69·67	123·94

(*n*).—LEAGUE OF NATIONS HEALTH ORGANISATION EASTERN (SINGAPORE) BUREAU

In my annual report for 1926 (pages 16–20) and 1928 (pages 13–21) a brief account is to be found of the previous activities of this Bureau and of the first four annual meetings of its Advisory Council.

The annual meeting of the Advisory Council to consider the 1929 report of the Bureau and matters arising therefrom was held in February 1930 at Bandoeng in Java, on the kind invitation of the Government of the Dutch East Indies.

Present—Members of the Advisory Council.

Major-General J. D. GRAHAM (*Chairman*)	Representing British India.
Dr. K. NOBECHI (*Vice-Chairman*) ...	Japan.
Dr. T. YOKOYAMA	Japanese Colonies.
Dr. WU LIEN TEH	China.
Dr. F. H. GUERIN	French Indo-China.
Dr. PHRA BORIRAKSH VEJKAR	Siam.
Dr. J. J. VAN LONKHUYZEN	Netherlands East Indies.
Dr. A. L. HOOPS	British Colonies and Dependencies.

Australia did not send a representative.

Two Observers attended—

Dr. C. J. WILSON	Federated Malay States.
and Dr. R. W. HART	Philippine Islands.

In addition to Dr. R. GAUTIER, Director and Dr. T. OUCHI, Deputy Director of the Bureau, the meeting was attended by Mr. A. PELT, Member of the Information Section, Geneva, and Dr. TSEFANG, F. HUANG, a young Chinese medical man on his way to join the Health Section at Geneva.

It was evident from the Director's report that there had been an improvement in the regularity and an increase in the accuracy of information received not only from ports but from the hinterland of most of the countries which correspond with the Eastern Bureau.

Important new ports which are now sending regular information are Baghdad and Vladivostock.

(*a*) The increase is due to the fact that Police non-commissioned officers and constables are included in 1928 and 1929.

The Bureau supplied telegraphic information *re* 1,448 infected ports in 1929 against 1,170 in 1928 and 859 in 1927. The average annual cost of cables per infected port has fallen from Straits $18.73 and $10.93 in the two previous years to $10.83 in 1929.

A new improved code for the telegraphic transmission of epidemiological intelligence is now in preparation at Geneva.

One hundred and seventy-three ships reported having infectious disease on board in 1929 against 164 in 1928; the chief diseases reported were— Plague 6; Cholera 27; Small-pox 63; Cerebro-spinal Meningitis 6 and Scarlet fever 5.

In 37 instances the Bureau was able to send telegraphic notification before the arrival of an infected steamer to the port concerned.

The Government of Persia, which took over in 1928 the quarantine administration of the Persian Gulf ports from the Government of India officers who formerly controlled it, has not yet succeeded in introducing an epidemiological service.

With the recent organisation of a Chinese national quarantine service the epidemiological news from Chinese ports is likely to improve.

During the meeting the Council visited the great wireless station of Malabar near Bandoeng through which a daily summary of epidemiological intelligence in clear is now broadcast for the information of shipping.

Mr. WAASDORP, Director of the wireless station in Java, gave his advice to a sub-committee of the Council which met to consider matters connected with wireless wavelength and times of broadcast.

The necessity for the institution of Air quarantine, especially in connection with cholera and yellow fever, was stressed, as was the danger of yellow fever spreading to the Far East by accidental laboratory infections.

Turning to the co-ordination of Research which is a subsidiary function of the Bureau, a large amount of information on the subject of dry small-pox vaccine had been assembled by the Director. It appears that such vaccine retains its potency for long periods, and is most useful in countries where distances are great and communications slow. Further enquiries on the subjects of oral vaccination and of bacteriophage tend to show that experiments during the past year have been disappointing.

Plague research is being continued steadily in several countries: considerable results are to be expected when the expert international plague committee, appointed in Calcutta at the VII (1927) Congress of the Far Eastern Association of Tropical Medicine, meets during the VIII Congress of the same Association at Bangkok in December 1930.

The Council decided that the Bureau should undertake the collection of facts on pneumonia with a view to considering in 1931 the desirability of forming an expert committee to frame a scheme of co-ordinated research on this disease which is one of the leading causes of death in the tropics.

In addition to the annual meeting, Dr. VAN LONKHUYZEN, Director of the Medical and Health Services of the Netherlands East Indies and his officers demonstrated to the delegates the leading features of the Netherlands East Indies Medical and Health Service during a tour extending over one week, the expenses of which were met by the Netherlands East Indies Government.

The tour included inspections of the Batavia Quarantine Station on the Island of Onrust, of the College of Medicine in the University of Batavia, and of the Research Institute at Bandoeng, a demonstration of the anti-malarial measures taken for the prevention of malaria originating from coastal fish ponds, a demonstration of the methods of public health propaganda employed in Java, and a visit to the plague infected districts in the hills of mid Java where over one and a quarter million rat proof houses have been constructed in the last ten years, a measure that has proved most successful in combatting plague

The Resolutions passed by the Advisory Council at the Bandoeng meeting were as follows—

RESOLUTIONS

1. The Advisory Council approves the Report of the Director of the Eastern Bureau for 1929 and congratulates the Director on the efficient manner in which he has administered the Bureau during the year.

2. The Advisory Council having recorded with pleasure an increased efficiency in the broadcast arrangements of the Bureau's intelligence, service, a position which has been largely brought about by the co-operation and generosity of the wireless departments of the Governments of French Indo-China, Netherlands East Indies, British India, British North Borneo, Hongkong, Madagascar, Japan and Shanghai—

(*a*) authorises the Director to convey its thanks to the heads of the various departments aforementioned;

(*b*) notes with great satisfaction the generous offer of the Director of the Netherlands East Indies Post, Telegraph, and Telephone Services to arrange for a daily broadcast of the Bureau's bulletin for ships at sea.

3. The Advisory Council resolves that its warmest appreciation be tendered to the Government of the Netherlands East Indies for their kind invitation to hold the annual meeting of the Council in Java, for the great facilities afforded it during its meeting in Bandoeng, for the ample opportunities given to the members to study the excellent organisation of medical research and of preventive and curative medicine in the Netherlands East Indies, and for the generous hospitality accorded to the delegates.

4. The Advisory Council passes the Accounts for the year 1929, which have been duly certified by the Auditors of the Bureau; and having considered carefully the proposed Estimate of $101,981 for the year 1931, approves of it.

5. The Advisory Council records with thanks the donation of $500 (gold) by Mr. J. J. FORSTALL of Chicago as a contribution towards the expenses of a special object of research in which the Bureau is interested.

6. The Advisory Council having noted the remarks of the Health Committee in regard to the collection of epidemiological information regarding the interior of the countries associated with the Eastern Bureau, points out that such information is already being supplied by 35 countries, a list of which appears in the Director's Report.

7. The Advisory Council having considered certain improvements which, as a result of recent experience, should, in its opinion, be made in the broadcasts of the Bureau's epidemiological intelligence service, and believing that a satisfactory solution will be furthered if the problem is dealt with by international agreement between the competent authorities, requests the Health Committee to submit the question to the Technical and Advisory Committee for Communications and Transit of the League of Nations with a view to the two committees studying this item of international collaboration in order that adequate suggestions may be framed for the use of all concerned and eventually for presentation at the forthcoming Conference for the Revision of the International Radio Telegraph Convention of Washington, 1927.

8. The Advisory Council having considered the reply of the Director of the Office International d'Hygiene publique dated July 12th, 1929, to a letter from the Acting Medical Director of the Health Section of the League of Nations dated June 25th, 1929, concerning the enforcement of certain measures in regard to vaccination against small-pox by the Port Health Authorities of Marseilles in May 1929, desires to express its unanimous opinion that, in the interest of international co-operation for the prevention of disease, any information regarding measures taken by the health authorities of a country situated outside the Eastern Area against the arrivals

from a country situated in this area should be communicated telegraphically by the Office International d'Hygiene publique to the Eastern Bureau as a regional information centre.

9. The Advisory Council resolves that special attention be given during the coming year to the collection of documentation on pneumonia with a view to the consideration at a future annual meeting of the desirability of appointing an expert committee on this disease.

10. The Advisory Council is of the opinion: —

(*a*) that in view of the momentous consequences which the introduction of yellow fever into one of the tropical Asiatic countries would entail and of the results of investigation in the Netherlands and England regarding the susceptibility of culicides and monkeys from British India and the Netherlands East Indies, nothing should be left undone to prevent the introduction of yellow fever into such countries of Asia as are known to be liable to infection;

(*b*) that stringent measures should be taken against the entry of the disease, the most urgent being: —

(i) the interdiction of all air traffic from infected or even suspected areas to any of the countries in the regional area of the Eastern Bureau until such time as the measures concerted by the Office International d'Hygiene publique are being effectually applied;

(ii) the prohibition by law under severe penalty of the importation or possession of yellow fever virus for any purpose in all countries in the East liable to infection with this virus;

(*c*) that to attain this object the closest co-operation between all interested countries is necessary, and that the Health Committee be therefore requested to bring this resolution to the notice of all administrations concerned.

III.—HYGIENE AND SANITATION

(*a*) ORGANISATION OF THE HEALTH BRANCH

The Principal Civil Medical Officer is Chief Health Officer of the Straits Settlements.

There is a Chief Health Officer, Singapore, who is responsible for the port and the rural areas of Singapore, and for the school inspection of the whole Settlement.

He also lectures in the College of Medicine and in the Sanitary Inspectors' School.

Under him are a Rural Health Officer, a Deputy Rural Health Officer, a Health Officer Schools, a Lady Health Officer Schools, a Health Officer, Quarantine Station, a Port Health Officer, a Deputy Port Health Officer, and an Assistant Health Officer.

In Penang, there is a Senior Health Officer who is responsible for the Port of Penang, the rural areas of the Settlement which include rural Penang, Province Wellesley, and the Dindings, and the Schools of the Settlement. Under him there are a Health Officer, Province Wellesley, and a Deputy Rural Health Officer, Penang; and the Deputy Medical and Health Officer, Lumut, and the three Assistant Medical Officers in the Province Wellesley District Hospitals, as far as the health work of their districts is concerned. Under him also is the Port Health Officer of the Quarantine Station.

(The Municipalities of Singapore and Penang have their own Health organisation, comprising in Singapore a Municipal Health Officer with 3 other Health Officers, a Bacteriologist, and several Assistant Health Officers, and in Penang a Municipal Health Officer, a second Health Officer, and an Assistant Health Officer).

In Malacca, there is a Government Health Officer, and an Assistant Health Officer who function for the whole Settlement, including the Municipality of Malacca.

The Assistant Medical Officers in charge of the two district hospitals in Malacca are under the health officer as regards their health work.

In the Island of Labuan the Medical Officer is also Health Officer.

The Unfederated Malay States Health Branches are staffed by officers seconded from the Straits Settlements.

Johore now has a cadre of a Senior Health Officer and three Health Officers, Kedah a Senior Health Officer and one Health Officer, Kelantan one Health Officer, Trengganu one Health Officer; in the State of Brunei in Borneo the Medical Officer is also Health Officer and Assistant Superintendent of Indian Immigrants.

There are European Chief Sanitary Inspectors in both Singapore and Penang, and there is a staff of locally trained Sanitary Inspectors in all districts.

The rural area of Singapore is divided into five sanitary districts, similarly the rural area of Penang Island is divided into five sanitary districts, Province Wellesley into four sanitary districts, Malacca into three sanitary districts. The Dindings and Labuan each constitute a sanitary district.

As a rule one or two sanitary inspectors are stationed in each sanitary district.

The Health Office of the district is the centre from which the district health propaganda and welfare work are developed.

Where there is a district hospital the health office is usually situated in or beside the hospital.

There are Rural Health Sisters in Singapore, Penang and Malacca under whom locally trained district health nurses hold maternal and child welfare clinics, do house and school visiting in the villages and kampongs, and in some cases maternity work.

The travelling motor dispensaries in the three Settlements co-operate in these duties, in addition to treating the sick.

Details of rural areas in the Colony, 1929:—

	Area in square miles	*Estimated population*	
	—	—	
Singapore	185	84,942	465,733
Penang Island	98½	47,216	
Province Wellesley	280	141,541	
Dindings	183	18,334	
Malacca	720	167,671	
Labuan	28½	6,029	
Add municipal area, Malacca which is staffed by part-time Government Officers	—	42,333	
	1,495	508,066	

(*b*) GENERAL REVIEW OF WORK DONE AND PROGRESS MADE

(I) PREVENTIVE MEASURES.

1. *Mosquito and Insect borne diseases.—*

Government provided the following votes for anti- mosquito work in 1929:—

Settlement	*Vote*
	$
Singapore	120,000
Penang	95,000
Malacca	33,000
Labuan	7,000

Continued progress is being made in anti-malaria measures throughout the Island of Singapore. In the rural areas the policy adopted is to destroy the breeding places of dangerous mosquitoes within a half mile radius of the outskirts of the principal villages and kampongs. Anti-mosquito oiling is used as a temporary measure followed, when possible, by the permanent draining of dangerous ravines and swamps. Periodic mosquito surveys are used as a control, supplemented by spleen surveys, malaria case records, and the vital statistics of each district. More than 16,000 anopheline larvæ were collected of which 16% were A. Maculatus, the chief malaria carrier in the rural area. Fourteen miles of subsoil pipes were laid at an average depth of 6 feet and 4.5 miles of main arterial open cement drains were constructed, permanently draining a area of 5 square miles. Forty-nine thousand nine hundred and twenty gallons of anti-malarial mixture, costing $10,927, were sprayed on potential breeding places to protect an area of 16 square miles. The total expenditure was $121,616.36 inclusive of $5,590.12 recovered for work done on private premises.

From 1921 up to the end of 1929, approximately $686,902 have been spent on rural anti-malaria work in Singapore Island. The number of persons protected from malaria by this work, is approximately 48,000. The cost per head per annum is $2.54 cents.

A complete record of mosquito breeding places discovered since 1921 has been kept. Plans of mosquito surveys are prepared and collections of mosquitoes are made.

(2) Provision was first made for anti-mosquito work in the Settlement of Penang in 1924. Special expenditure votes from that year have been $50,000 in 1924 and 1925 and $75,000 in 1926 and 1927, rising to $95,000 in 1928 and 1929. Such liberality has made it possible for the Health Branch to undertake measures for the permanent control of malaria in village areas that were notoriously malarial. The seriousness of the malaria problem in Penang Island is due to the widespread distribution of ideal breeding places for A. Maculatus. Anti-malaria measures are mainly directed against the larvæ stage of the mosquito. An area is placed under control by dealing with all breeding places for a distance of half a mile. At the commencement the application of larvicide (anti-malaria oil or Paris Green) is resorted to; permanent works, drainage, filling etc. are gradually instituted when feasible. The protection of all the zones that were under control in 1928 has been effectively maintained; during 1929, additional zones have been placed under control, and some of the old ones have been extended. On Penang Island newly controlled areas are:—Balik Pulau, Telok Bahang, Telok Kumbar and Bayan Lepas. The Glugor and Sungei Nibong areas have been extended as has also the zone of protection on Penang Hill.

In Province Wellesley the following centres have been made protected zones:—Bukit Mertajam, Sungei Bakap, Butterworth, Bukit Tambun, Batu Kawan, Kubang Semang, Tassek, Bukit Tengah, Nibong Tebal, Prai, the first five being places where permanent works have been instituted in addition to temporary measures.

In the Dindings the main extension of protected zones has taken place on the Segari Road. Permanent works at Lumut include the completion of draining ravine X, subsoil draining the surroundings of the Reservoir at ravine V, the commencement of subsoil draining ravine XI and several other small areas. Deep ditching is being carried out on the Segari Road.

The control of breeding places is the principal method employed, but a useful adjuvant in the suppression of malaria is the distribution of quinine by the travelling dispensary.

The following table gives a resume of work done:—

	Notices served	*Feet of subsoil drains laid*	*Feet of open masonry drains*	*Feet of earth drains*	*Wells constructed*	*Cubic yards of filling*	*Gallons of oil used*	*Feet Concrete walls*	*Mosquito larvae examined*
Penang ...	1,786	27,189	6,015	1,050	36	1,222	71,981	680	10,143
Province Wellesley ..	165	3,091	1,419	2,500	11	400	13,687	—	7,659
Dindings ...	36	3,750	167	3,500	5	600	8,115	—	2,534
Total ...	1,987	34,030	7,601	7,050	52	2,222	93,783	680	20,336

The expenditure incurred in maintaining previously completed work, the construction of new work, the salaries of the staff, the purchase of materials and tools, upkeep of lorry, purchase of larvicides and implements used in their application has, during 1929, amounted to $107,905.84, this figure consisting of the amount of $95,000 allowed by Estimates plus the sum of $12 905.84 recovered from private owners.

(3) Provision was first made for anti-mosquito work in the Settlement of Malacca in 1926, when a vote of $30,000 was provided. The vote was increased to $33,000 in 1928 and a similar sum was provided in 1929.

Eighty-one mosquito surveys were made in suspected places and the following anopheline larvæ were collected and identified—a maculatus, a umbrosus, a ludlowi, a kawarri, a kochi, a fuliginosus, a leucosphyrus, a vagus, a sinensis and a barbirostris.

Co-operation between a few of the large rubber estates *e.g.* Asahan, Rim, Rembia, Kemuning, Batang Malaka, Lee Keng Hye and Pulau Sebang, with regard to oiling of Crown land bordering these estates has been very useful in reducing the incidence of malaria in the vicinity.

Anti-malarial works undertaken in rural Malacca may be summarized as follows:—

Ujong Pasir.—An area of about three-fourths of a square mile of nipah jungle is being drained; clearing and filling is being carried out where necessary.

Tanjong Kling.—An area of about three-fourths of a square mile of nipah jungle has been drained, the water eventually finding its way into the sea; clearing and filling, where necessary, has also been done, and oiling is carried out once a week.

Umbei.—At the Police Station in this mukim a mosquito survey revealed the presence of a ludlowi and a umbrosus. This area was then cleared of all undergrowth and drained.

Jasin Village.—On the west side of this village a ravine has been efficiently drained with subsoil and open drains. Filling and oiling of areas in the vicinity was also carried out.

Kemuning Village.—A ravine and an area of a quarter of a mile have been drained with subsoil and open drains.

Alor Gajah.—In the neighbourood of the hospital and the village about 167 yards of earth drains were cut, filling and levelling done, where necessary, and oiling of the drains was carried out.

Pulau Sebang.—A large ravine in Malacca territory bordering on the Malacca—Negri Sembilan boundary was efficiently drained with subsoil pipes and open concrete drains: this work was undertaken by the Health Officer, Tampin, and his staff.

(II).—General Sanitation and Village Conservancy

Under this heading are included house to house inspection, village scavenging, control of night-soil, (removal and disposal), control of piggeries, cattlesheds and dairies, inspection of markets, surveys of sites and building plans, sanitary supervision of police stations, rubber estates and factories, control of water supplies and sanitary control of schools.

SINGAPORE

The estimated number of houses in the rural districts is 13,006. Three thousand seven hundred and eighty routine house to house inspections were made by district sanitary inspectors. A number of similar inspections in cases of difficulty and complaint were carried out by the rural health officer. The sanitation of government buildings and crown land within the Municipal limits was supervised by the health officer and the routine monthly inspections of all government offices and quarters were carried out by the sanitary inspector (town) and mosquito-collector.

Village scavenging and refuse collection is organised by the Health branch; all the villages in the rural areas are served with one or more incinerators according to their need. There are 16 such incinerators and during the year 33,685 cubic yards of rubbish were consumed.

Considerable advance has been made during the year in the control of soil pollution. Three hundred and forty-nine insanitary latrines were demolished and 362 new sanitary latrines were erected by owners of houses. One hundred and sixty-five tube latrines were sunk by the Health branch in Bukit Timah district. All new buildings in village areas and all coffee shops and eating-houses and rubber estates in rural areas have sanitary latrines. The trenching ground at the 8th mile West Coast Road and the septic tanks at Paya Lebar and Bukit Timah have worked very satisfactorily.

Two hundred and eighty-six buildings plans were submitted to the rural health officer for approval; in the majority of the plans submitted, alterations of the sanitary arrangements were made. The big decrease in building plans was due to the taking over by the Municipality of the better part of Geylang and Siglap district which was developing rapidly into a suburban area.

Reports of births and deaths registered at each police station are collected and scrutinised. The police co-operate in gathering children for vaccination and in finding new-born infants for the health sister.

Schools.—Three hundred and thirteen visits by sanitary inspectors were made to schools. The sanitation of all government and aided schools is satisfactory.

PENANG SETTLEMENT

The greater part of this work is carried out in accordance with Rural Board regulations.

For conservancy, the system followed is the appointment of a reliable man who is authorised to collect the night-soil and dispose of it in the manner prescribed. He is allowed to charge the public a fee not to exceed $1 per month per bucket. This method is in use in all gazetted villages, except at Lumut, where the collected night-soil is removed in specially constructed buckets and thrown into the sea.

The following figures show the work done in general sanitation:—

Number of inspections of

	Houses	*Latrines*	*Police Stations*	*Schools*	*Copra Sheds*	*Cattle Sheds*	*Goat pens & poultry farm*	*Pigstyes*
Rural Penang ...	20,110	12,616	124	118	15	1,043	342	1,076
Province Wellesley ...	3,038	6,090	325	242	—	625	205	1,851
Dindings ...	375	236	12	72	—	15	—	60
Total ...	23,523	18,942	461	432	15	1,683	547	2,987

In Penang Island, 2,820 Rural Board notices were issued. There were 266 prosecutions and the total amount of fines realized was $746.50.

In Province Wellesley notices issued were 197; prosecutions were 109; and fines amounted to $783.50.

In the Dindings, 36 notices were issued; 2 prosecutions were effected; fines were $10.

Sanitation on Penang Hill is being enforced on different lines. A water borne sewage system is the method insisted on for permanent buildings, a small septic tank being constructed for each house. Temporary residents, such as workmen engaged in building, are allowed to use pit latrines which are rigorously watched by the sanitary staff.

Everywhere latrine construction has been pursued with increasing energy. Pail latrines are generally used within village limits. Tube latrines are allowed and even recommended wherever suitable; likewise in certain instances, oversea erections. Latrines constructed numbered 2,010 in rural Penang Island, 354 in Province Wellesley, and 12 in Dindings.

For refuse disposal, the method generally employed is incineration. In several places, new incinerators of an improved pattern have been constructed.

At Tanjong Tokong, the method of refuse disposal by dumping has been adopted. Low lying land is chosen where pits are dug and these are filled with refuse. Fly breeding is guarded against by treatment with lime and liquid disinfectant. The pit is filled to within one foot from the top.

MALACCA

Certain gazetted village areas are scavenged by coolies under the direct supervision of overseers belonging to the Rural Board, and controlled by the health branch.

There are now 26 gazetted village areas in rural Malacca including one newly gazetted: the Municipal Ordinance and Municipal by-laws are applicable in these areas.

In addition to the rural board coolies, the health officer provides travelling gangs of mandores and coolies, and refuse, empty tins, etc. are collected and either burned or buried. This amounts to 4,751 cubic feet daily. All villages are being provided with incinerators.

A night-soil removal system is in operation in 12 gazetted villages and is being gradually extended.

WATER

The water supplies of the cities of Singapore, George Town (Penang) and Malacca, which have lately been greatly extended, are pure and abundant. A number of the surrounding villages are served by the Municipal supplies.

The enhanced Singapore supply is derived from catchment areas in Johore, some thirty miles distant: to reach Singapore Island, the pipes are laid on the Johore Causeway.

There are excellent piped supplies at Balik Pulau, a large village on Penang Island, and at Butterworth and Bukit Mertajam in Province Wellesley, where the amount is to be augmented by impounding additional water at Siraya next year.

The Bukit Panchor reservoir, supplying the villages of Nibong Tebal and Sungei Bakap in South Province Wellesley, is affected with a growth of algae which, at times, fouls the water. Treatment with lime produced only a transient good effect; a scheme for permanently purifying this water is in hand.

In Lumut, the headquarters of the Dindings, there is a piped supply from hill streams impounded in two catchment reservoirs.

In Labuan, there is a similar supply.

A number of rubber estates have their own piped water systems.

In rural areas, spring water is as a rule plentiful along the foothills. In many such places, the health officers have utilised the anti-malarial subsoil drainage systems to provide the neighbouring villages and kampongs with a water supply, by carrying subsoil water into cemented basins, through which a constant flow is maintained to prevent mosquito breeding.

In kampongs on flat land, the water supply is mostly from shallow earth wells.

(III) School Hygiene

There are in the Colony about 70,000 children of school age.

In Singapore, there are whole time male and female school health officers.

In other Settlements, the work is done as a part time duty by members of the health and medical staffs.

The travelling dispensaries co-operate in this work in rural areas.

The health sister sends sick children and non-vaccinated children for treatment to the travelling dispensary.

The health officer arranges for the dispensary to visit the schools he has inspected, and to treat children.

Quinine is distributed and blood films taken by the assistant medical officer or the dresser in charge.

In the cities where dental defects are serious, more children are now being sent to the dentists.

The formation of a Government dental department is under consideration.

(Details of school work are given in Appendix *F*, pages 71 to 78.)

(IV) Labour Conditions

Estates.

Estates are inspected by Government health officers and their subordinates.

There are 96 rubber or coconut estates in Singapore Island, with labour forces of over 25 coolies.

There are also 29 large rubber factories, whose coolies usually are not housed on the premises, but live in villages or in the city, whence they are brought to their work in lorries.

The large rubber estates in Singapore Island have visiting medical officers. The same system obtains on Penang Island where there are 32 rubber, coconut or spice estates, employing over 25 coolies each. There are 209 similar estates in Province Wellesley, including 31 large European owned estates. One group of estates there, known as "Caledonia", has its own resident medical officer. A number of other estates have visiting medical officers. There are six estate hospitals in Province Wellesley, the largest of which serves the "Caledonia" group.

In the Dindings, where there are 38 estates, conditions are similar. There are two estate hospitals.

In Malacca, there is a planters' board, known as the Malacca Agricultural Medical Board, which has grouped the whole of the Malacca estates, and engaged six medical officers, four Europeans and two Chinese, stationed at convenient centres. Some of these officers are doing good preventive work. Twenty-eight Malacca estates have small hospitals or sick lines. The Malacca estate medical service, which is paid for by a cess on the planted areas has undoubtedly reduced the death-rate in Malacca estates. The estates under this board total 722, of which 180 exceed 100 acres in area: the annual revenue of the board is about $110,000, and the average number of coolies employed about 24,000.

In all parts of the Straits Settlements, estates which have no hospitals use the Government hospitals. Even estates with hospitals send most of their serious cases into Government hospitals.

Other Labour

The health of the Public Works and other labour forces in rural areas is cared for directly by the medical department.

Offensive trades operate almost entirely in the Municipalities, where they are controlled effectively.

Factories and shops in cities are controlled by the Municipal authorities.

(V) HOUSING AND TOWN PLANNING

The working out of further improvement Schemes is proceeding in the Municipalities of Singapore and Malacca: land is being acquired and laid out.

The sum of ten million dollars, appropriated by Government for the scheme in Singapore, is being spent.

Two hundred houses have been erected in the Serangoon district, and an extensive reclamation scheme is being carried out in the Tiong Bahru area of Singapore.

(VI) FOOD IN RELATION TO HEALTH AND DISEASE

The inspection and control of food is carried out by the municipal and government health officers in their respective areas. There are markets at all centres.

Milk vendors, eating houses, coffee shops, meat shops and aerated water factories are licensed and inspected. Water, milk and other beverages and food stuffs both local and imported are regularly analysed, and action is taken if indicated.

The practice of referring to the Health branch applications for licences for coffee shops, eating shops, slaughter houses, markets, milk vendors, etc. has been continued with satisfactory sanitary results.

Inspections as tabulated were carried out in the Northern Settlement—

	Coffee Shops	*Toddy Shops*	*Eatings Shops*	*Markets*	*Milk Vendors*	*Slaughter Houses*
Penang ...	1,913	72	—	65	8	141
Province Wellesley ...	1,422	319	1,023	144	336	314
Dindings ...	51	30	—	119	—	52
Totals ...	3,386	421	1,023	328	344	507

In addition, bakeries, fishmongers' shops, grocers' shops and chandu shops were inspected.

In Malacca, similar work was done. Seven villages have good markets. There are eight dairies in the rural area, supplying milk to Malacca town; samples taken were satisfactory.

(*c*) MEASURES TAKEN TO SPREAD THE KNOWLEDGE OF HYGIENE AND SANITATION

Some of these are detailed in the Maternity and Child Welfare and Social Hygiene reports.

Baby shows have been held in both large and small centres. Health officers and their assistants and health sisters give advice on the preservation of individual health both at clinics and in set lectures. Lantern slides and films are shown, especially in connection with venereal disease, hook-worm and malaria. Pamphlets and posters are issued. Lectures on health are given in all Government schools both English and Vernacular.

The diffusion of knowledge of the principles of hygiene is gradually spreading amongst school children through lectures and by demonstrations and physical examinations carried out in the schools, amongst mothers through the visits of the health sisters and amongst the population generally through the gradually awakening intelligence of those who share in the advance of sanitary progress. The householder who is unaware of the existence of a sanitary inspector is now a rarity and few owners of land are left in ignorance if their holding proves to be a breeding place for mosquitoes.

Sanitary inspectors are taught to advise and encourage rather than to adopt the roll of the policeman. The knowledge of their duties, in which they receive a comprehensive grounding during their course of instruction in Singapore, is supplemented by fortnightly lectures at the office headquarters.

Public health museums have been set up in some of the health offices, both for the instruction of staff and the education of the general public: there are also exhibits and posters at the health centres.

Propaganda work received a great impetus from Dr. Paul Russell when director of the Rockefeller Hook-worm and Sanitation Campaign. Since his departure, the work has been undertaken on a permanent basis by the Health Branch.

(*d*) TRAINING OF SANITARY PERSONNEL, 1929

The sanitary inspector is to a Health Service what a sergeant is to the army, its backbone.

With the development of rural sanitary work, it became obvious in 1921 that the Government should have a proper staff of sanitary inspectors. A lecture-room, small museum and various offices and a store were fitted out. The collaboration of the Royal Sanitary Institute of London was fortunately obtained; and, in accordance with its practice in suitable tropical centres, the Institute agreed that students locally trained on an approved schedule should be able to obtain the Sanitary Inspector's Certificate of the London Institute after an examination by an approved board of examiners in co-operation with the Government of the Straits Settlements. This facility was much appreciated, for it meant that not only the students destined for Government service would be catered for, but, at the same time, without much expenditure, members of the public might be admitted to the course on payment of the necessary fees. The first session began in May, 1921, and was attended by five selected candidates for Government Service.

The numbers of students rapidly increased until since 1924 it has been necessary to limit the class so as to ensure that all should have adequate training.

In 1926, twenty-six students attended the course, of whom twenty passed. In 1927, thirty-three attended the course, of whom twenty-one passed. In 1928, twenty students attended the course and six others presented themselves for the examination for the Certificate which they had failed to obtain at previous examinations; nineteen passed. In 1929, twenty-seven students attended the course and seven others presented themselves for the examination for the Certificate which they had failed to obtain at previous examinations; twenty-five passed.

Students have been sent by the Governments of the Straits Settlements, Federated Malay States, Unfederated Malay States, Sarawak and British North Borneo, and by the Municipalities of Singapore and Malacca.

A few private students have also been admitted.

So far, the Municipality of Penang has not taken advantage of the opportunity to train its probationers at our school.

IV.—PORT HEALTH WORK AND ADMINISTRATION, 1929

A.—SINGAPORE

1.	Number of ports from which vessels arrived	361
2.	Names of ports against which quarantine measures were declared during the year:— Aden, Amoy, Bombay, Basra, Bassein, Bangkok, Calcutta, Canton, Cochin, Dairen, Djibouti, East coast of Siam, Hongkong, Haiphong, Jeddah, Karachi, Karikal, Madras, Macassar, Macao, Moulmein, Negapatam, Pnompenh, Pondicherry, Osaka, Rangoon, Saigon, Shanghai, Swatow, Tuticorin, Vizagapatam.	
3.	Total tonnage of ships entering the port	15,583,485
4.	Number of ships entering the port	9,768
5.	Ships examined including pilgrim ships and infected ships	1,578
6.	Outgoing pilgrim ships examined	14
7.	Returning pilgrim ships examined	8
8.	Infected ships examined	16
9.	Ships fumigated or disinfected	151
10.	Crew examined	133,637
11.	Passengers examined including Muslim pilgrims and Chinese immigrants	392,411
12.	Outgoing pilgrims examined	5,782
13.	Revenue from charges for fumigation or disinfection of ships and from certificates issued to such ships ...	$17,662.90
14.	Returning pilgrims examined	3,901
15.	Chinese immigrants examined	293,167
16.	Corpses inspected in harbour	39

17.	Water-boats examined in harbour	59
18.	Passengers undertakings issued for surveillance ashore	119
19.	Optional certificates issued to ships fumigated or disinfected	139
20.	Bills of health issued	3,255
21.	Permits to import and export corpses issued	33
22.	Revenue from bill of health fees (53 free to warships)	$16,010
23.	Revenue from permits to import and export corpses	$320
24.	Charge for water supplied to passengers at quarantine station (recovered from agents)	$3,638.55
25.	Total revenue	$37,631·45
26.	Exemption certificates issued to ships	296
27.	Outgoing pilgrims vaccinated both for cholera and small-pox	1,850
28.	Deratisation certificates issued	1
29.	Rats trapped and bacteriologically examined:—	

R. Decumanus	*R. Rattus*	*Others*	*Plague Infected*	*Total*
61	366	2	Nil.	429

St. JOHN'S QUARANTINE STATION, SINGAPORE

1.	Total passengers admitted during the year	84,282
2.	Greatest number admitted in any one day (22/3/29)	2,297
3.	Maximum number in residence on any one day (29/3/29)	4,385
4.	Minimum number in residence on any one day (24/3/29)	20
5.	On 315 days there were none in residence	
6.	Total sick treated in hospital *i.e.* total admissions during the year and patients remaining in hospital on 31/12/28	120
7.	Maximum number in hospital on any one day (30/3/29)	31
8.	Minimum number in hospital on any one day (11/1/29)	1
	(*Note.*—On 136 days there were none in hospital).	
9.	Average daily number of sick in hospital	1·627
10.	Total deaths during the year	14
11.	Death-rate per mille in hospital	25
12.	Death-rate per mille amongst passengers admitted	0·16
13.	Total cases of Cholera admitted	Nil.
14.	Total cases of Cholera admitted	Nil.
15.	Total cases of Plague admitted	Nil.
16.	Total cases of Small-pox admitted	10
17.	Number of non-infected ships whose passengers subsequently developed infectious diseases on the Island	Nil.
18.	Number of infected ships whose passengers subsequently developed infectious diseases on the Island	Nil.
19.	Number of primary vaccinations	1,097
20.	Total revaccinations	20,497
21.	Total inoculations with anti-cholera vaccine	49
22.	Total inoculations with anti-meningococcus vaccine	397
23.	Total number of N. A. B. injections	9
24.	Cases treated as out-door patients (contacts and staff)	201
25.	Total births (2 staff)	2
26.	Number of municipal contacts and patients admitted:—	
	Small-pox contacts	12
	Plague contacts	Nil.
	Cholera contacts	Nil.

27. Number of government contacts and patients admitted:—small-pox contacts 48

28. Number of municipal contacts who developed infectious diseases on the island ... ... Nil.

29. Number of government contacts who developed infectious diseases on the island ... ... Nil.

30. Corpses sent to station for P. M. examination and burial 6

31. Number of gallons of water distilled during the year ... Nil.

32. Number of gallons of Singapore water pumped up ... 2,910,208

CONDENSED RESUME OF PORT HEALTH WORK SINGAPORE FOR 27 YEARS

Year		*Crew and Passengers examined*	*Passengers sent to St. John's Island*	*Visits to Vessels*	*Bills of Health issued*
		—	—	—	—
1903	...	321,365	21,253	809	1,000
1904	...	279,297	17,852	712	1,036
1905	...	323,431	12,109	1,279	1,220
1906	...	493,021	30,076	1,625	1,674
1907	...	377,325	25,408	1,226	1,318
1908	...	303,484	29,356	1,506	1,344
1909	...	291,625	15,072	1,251	1,299
1910	...	467,868	35,062	1,920	1,200
1911	...	538,291	53,961	2,100	1,800
1912	...	539,677	56,726	1,927	2,145
1913	...	506,925	56,838	1,818	1,582
1914	...	402,583	18,193	1,803	1,802
1915	...	200,978	3,335	821	1,563
1916	...	426,584	9,738	1,617	1,726
1917	...	277,442	78,881	694	1,915
1918	...	284,198	24,182	1,709	2,086
1919	...	411,921	28,318	2,130	2,160
1920	...	507,176	31,991	2,023	2,878
1921	...	511,747	8,950	1,851	2,951
1922	...	369,072	15,343	1,552	2,720
1923	...	395,583	7,374	1,360	2,718
1924	...	408,419	39,053	1,433	2,912
1925	...	366,671	46,063	1,018	3,204
1926	...	550,443	78,963	1,650	3,273
1927	...	643,066	20,169	1,568	3,071
1928	...	501,009	13,993	1,342	3,345
1929	...	526,048	84,282	1,578	3,255
Total	...	11,189,248	972,541	40,319	57,197

B.—PENANG

1. Ports of Clearance on which quarantine restrictions were imposed were:—

Small-pox.—Madras, Calcutta, Negapatam, Rangoon, Hongkong.

Cholera.—Calcutta, Rangoon, Bangkok and other Siamese ports.

2. The following infected ships arrived in Penang during the year:—

Date of arrival	Ship	Port	Infection	——
5-1-29	Katori Mary ...	Hongkong ...	Smallpox ...	1 Saloon passenger removed at Singapore ... ...
10-3-29	Ekma ...	Calcutta and Rangoon ...	Cholera ...	1 Deck passenger died before arrival ... ...
15-3-29	Rajula ...	Nagapatam ...	C.S.M. ...	1 Deck passenger ... ...
19-3-29	Tilawa ...	Calcutta and Rangoon ...	Cholera ...	1 Deck passenger died before arrival ... ...
24-3-29	Elephanta ...	Calcutta and Rangoon ...	Cholera ...	1 Deck passenger died before arrival ... ...
18-6-29	Tosari ...	Jeddah ...	C.S M. ...	1 Pilgrim ... ...
5-7-29	Rajula ...	Nagapatam ...	Smallpox ...	1 Coolie ... ...
12-7-29	Ethiopia ...	Madras ...	Smallpox ...	1 Coolie removed at Port Swettenham ... ...
14-7-29	Ekma ...	Calcutta and Rangoon ...	Smallpox ...	1 Deck passenger removed at Rangoon ... ...

3. Other details are summarised as follows:—

1.	Passengers admitted to Quarantine Station ...	58,013
2.	Greatest number admitted on any one day (16/6/29 ex. s.s. "Tilawa")	3,350
3.	Passengers medically examined	195,985*
4.	Crew medically examined	66,491
5.	Maximum number in residence on any one day (22/6/29)	4,334
6.	Minimum number in residence on any one day (Quarantine Station was empty on 14/2/29)	Nil.
7.	Sick treated in Hospital (patients remaining on 31/12/28 included)	1,152
8.	Total deaths during the year (of these 20 died within 48 hours)	56
10.	Number of births	Nil.
11.	Cases of Cholera admitted	Nil.
12.	Cases of Plague admitted	Nil.
9.	Death-rate among those treated per mille	48·6
13.	Cases of Smallpox admitted	2
13A.	Cases of C. S. M. admitted	2
14.	Number of vaccinations	54,554
15.	Number of anti-cholera inoculations	1,109
16.	Number of out-patients treated	1,480
17.	Number of anthelmintic treatments	29,382
18.	Corpses examined in harbour	9
19.	Permits to import or export corpses	25
20.	Certificates to accompany hides	16
21.	Water boats examined	20
22.	Revenue in stamp fees†	$5,547.00
23.	Number of vessels entering the port (including native craft)	10,457
24.	Total tonnage of these vessels	6,870,472
25.	Number of ships examined (infected ships 9) ...	532
26.	Number of pilgrim ships proceeding to Jeddah ...	8
27.	Outgoing pilgrims examined	3,630
28.	Number of pilgrims returning to Jeddah	Nil.
29.	Returning pilgrims examined	3,924
30.	Infected ships proceeding to Quarantine	9
31.	Fumigations and disinfections by disinfecting launch ...	22
32.	Number of disinfection certificates issued	3
33.	Passengers undertakings issued	345
34.	Bills of health issued	1,058
35.	Exemption permits issued	230

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* (This does not include 3,630 pilgrims proceeding to Mecca)

† Total revenue was $18,051-04 made up of:—

Stamp fees ...	$ 5,547.00
Cash ...	12,504.04
	$18,051.04

CONDENSED RESUME OF PORT HEALTH WORK, PENANG, FOR 26 YEARS

Year	No. of vessels inspected	Bills of Health issued	Passengers and crew units examined	Passengers sent to Quarantine	Number of Small-pox admissions	Number of Cholera admissions	Number of Plague admissions	Vaccinations carried out
1904	748	...	184,691	2,217	16	5	2	...
1905	869	266	214,136	10,406	10	1	...	...
1906	675	460	204,988	23,288	16	8	2	6,490
1907	633	...	219.839	17,650	4	24	1	5,625
1908	1,205	...	176,119	21,175	51	9	2	5,691
1909	503	...	161,971	23,058	25	2	1	5,614
1910	526	...	217,967	71.876	62	33	2	12,205
1911	1,144	...	277,151	134.957	109	387	1	63,988
1912	634	...	287,373	55,493	75	4	4	38,297
1913	818	...	272,473	53,937	11	12	1	37,276
1914	1,040	...	215,067	48,399	171	9	...	32,609
1915	405	396	148,662	23,176	3	...	...	21,562
1916	662	...	213,726	42,736	11	1	...	36,806
1917	367	437	203,737	37,595	11	12	...	36,808
1918	551	612	173,813	33,481	7	80	...	29,536
1919	493	633	210,839	50,733	6	264	...	39,941
1920	432	602	207,424	43,733	4	8	...	41,230
1921	461	393	197,446	19,653	42	3	...	10,377
1922	480	530	197,579	31,247	6	...	...	26,675
1923	442	646	182,349	24,129	2	9	...	23,359
1924	461	703	214.936	28,701	Nil.	151	...	25,779
1925	417	754	203,204	44,984	8	47	...	42,514
1926	885	753	282.530	85,607	5	91	...	77,879
1927	3,201	733	367,183	88,849	11	41	...	83,675
1928	1,821	898	257,507	43.273	11	...	...	40,354
1929	532	1.058	262,476	58,013	1	...	...	54,554

V.—KING EDWARD VII COLLEGE OF MEDICINE, SINGAPORE

Staff.—(1) The Principal, Dr. G. H. MACALISTER, was invalided to Europe on 30th May, 1929, and was retired on 14th March, 1930. His services were valuable during a most important decade of reorganisation of curriculum and staff, and construction of new buildings.

Dr. G. V. ALLEN, Bacteriologist, Institute of Medical Research, Kuala Lumpur, has acted as Principal since 22nd June, 1929.

(2) Mr. B. M. JOHNS, F.R.C.S. was appointed Professor of Clinical Surgery, *vice* Mr. A. D. WRIGHT resigned, with effect from 18th August, 1928.

The professorial staff was brought up to full strength by the arrival of Mr. E. K. TRATMAN, L.D.S. to fill the post of Professor of Dentistry on 17th November, 1929.

(3) Qualified assistants have now been provided for every intern professor, and all these posts are filled at the time of writing. Five additional laboratory assistants have also been appointed.

(4) Mr. G. H. STEPHENS, assumed duty as Dental Mechanic on 2nd November, 1929.

Students.—There was an entry of twenty-one medical students and two dental students during the year 1929. Twenty-five students left the College during the same period; of these, thirteen completed the course and received the Diploma of L.M.S., Singapore; four left in order to continue their studies at Edinburgh or Hongkong; seven ceased to study medicine, and one died.

There were one hundred and three students at the College at the end of the year, including four dental students. Nationalities of students are—Chinese 46, Indians 35, Eurasians 11, Malays 10, Japanese 1.

Clinical Teaching.—Every senior student must spend at least one year actually carrying out resident intern duties in hospital. These students have definite cases allotted to them, and are responsible for carrying out the investigations, both clinical and laboratory, keeping case records, methods of examination and treatment, assisting at operations, and after treatment, and giving anæsthetics under supervision.

Medicine.—A ward at the large free hospital, Tan Tock Seng, has been converted into laboratories, lecture hall, X-ray room. In the two adjoining wards, are kept 80 picked clinical cases, chosen from the 1,000 beds of the hospital, to be studied and examined by the students, who also assist in carrying out treatment there. To these wards, a small kitchen has been added where special diets can be cooked and practical instruction given on local foods. From the observations made in these wards, it has been possible to take steps to reduce beri-beri, lead-poisoning from the use of lead face powders, and certain occupational skin diseases.

Surgery.—Similar arrangements are in force for the teaching of Clinical Surgery. The institution of the students clinical laboratory, and consultations with physicians and the following of cases to the postmortem room, has taught students that medicine surgery, bacteriology, pathology and biochemistry, are all correlated parts of the healing art.

Midwifery and Gynæcology.—The teaching of practical midwifery is simple. Over 1,500 normal cases are available for delivery by students yearly, and they can also witness the treatment of many abnormal cases, and are taught to apply forceps and deliver breech cases themselves. The students also attend the puerperal cases with the officers in charge, and see the treatment of the various abnormalities of the puerperium.

The teaching of gynæcology is more difficult, as in most cases vaginal examination by students is only possible when cases are under an anæsthetic.

Pathology.—The opportunities for studying clinical pathology in the mortuaries are unrivalled, and much practical forensic medicine is studied at the same time.

Public Health.—Appropriate demonstrations are given in connection with the prevention of the entry and spread of infectious disease, by sea and land, vaccination, anti-mosquito measures, rural, estate and school sanitation, health education and propaganda, factories, town-planning, food, water supply, meteorology, and infant welfare work. Some of the demonstrations are made possible by the collaboration of municipal officers and estate managers.

Research.—In addition to the usual routine teaching by intern professors, a considerable amount of research has been undertaken by certain members of the staff. The Professor of Biochemistry continued his researches on beri-beri, and on the protein of native diets. An investigation of different par-boiled rices were carried out and extracts of rice polishings were tested upon animals. Various local foods, particularly dhals, were studied by means of feeding experiments. A study of the types of food available for lake fish in Pahang was made.

The Professor of Biochemistry and the Director of the Geneeskundig Laboratorium at Batavia, where Eijkman first related beri-beri with faulty nutrition, paid reciprocal visits to each others laboratories to compare and co-ordinate their work.

Simple pamphlets, suitable for translation into the vernacular, were issued. Professor ROSEDALE, in collaboration with his assistant, Dr. C. J. OLIVEIRO, has also produced a manual "Biochemical methods in Clinical Diagnosis" of which 500 copies have been printed by Government.

The Professor of Bacteriology paid a visit to Manila to study the Philippine methods for the control and treatment of Leprosy: he continued his investigations in the cultivation of the Leprosy bacillus and other acid fast organism.

(The annual report of the Principal of the College of Medicine is being published separately).

VI.—MATERNITY AND CHILD WELFARE ACTIVITIES IN THE STRAITS SETTLEMENTS

I.—MATERNITY HOSPITALS.

There are Government Maternity Hospitals in both Singapore and Penang, and maternity wards in several of the Government District Hospitals, in the Church of England Mission Hospitals at Singapore and Malacca, and in the Kwong Wai Shiu Hospital, Singapore, a charity supported by the Cantonese community.

Return of women admitted to and delivered in maternity institutions in the Straits Settlements, 1929—

	Admitted	*Delivered*
1. Maternity Wards, General Hospital, Singapore	950	885
2. Free Maternity Hospital, Kandang Kerbau, Singapore	1,772	1,606
3. Maternity Ward, St. Andrew's Mission Hospital, Singapore ...	276	261
4. Maternity Ward, Kwong Wai Shiu Hospital, Singapore	478	458
5. (i) King Edward VII Maternity Hospital, Penang	1,343	1,102
(ii) Maternity Wards in Province Wellesley and Lumut Hospitals ...	107	107
6. Maternity Ward, St. David's Mission Hospital, Malacca	134	134
7. Maternity Wards in Malacca and other District Hospitals ...	91	90
Total ...	5,151	4,643

II.—TRAINING AND WORK OF MIDWIVES

Numbers of midwives are trained at the Government Hospitals; a few are trained at the mission hospitals.

Class A midwives comprise women with sufficient English education to undergo a 12 months' training and examination similar to the C.M.B. at Home: they receive a Diploma. Nurses with British diplomas are registered in this class also.

Class B midwives comprise Asiatics of lower education, who undergo a practical training given in Malay, for from six to nine months, and pass a practical examination.

Class C consists of women who have been registered, though unable to pass an examination, because they were in regular practice before the passing of the Midwives Ordinance.

The number of registered midwives in the Colony is:—

Settlement	*Singapore*	*Penang*	*Malacca*
Class A	122	49	5
Class B	301	126	19
Class C	26	14	12
Total ...	449	189	36

The number of births in the Colony in 1929 was 42,102.

Of some 35,000 births in Singapore and Penang Islands, nearly three quarters were attended by trained midwives.

Ordinance No. 150 (Midwives) was brought into force in such portion of the Singapore Rural Board area as lies within the Island of Singapore, in the Penang Rural Board area and in the Province Wellesley Rural Board area as from 1st January, 1930. The result is that in these rural areas, as in the three Municipalities, unlicensed handy women are no longer permitted to practise.

III.—INFANT AND CHILD WELFARE SERVICES

These are conducted by the Municipalities of Singapore, Penang and Malacca, within their boundaries, by the Singapore Child Welfare Society, and, in rural areas, by Government.

A.—Municipalities

The Singapore Municipality has a Lady Medical Officer and 7 qualified sisters. Four of these, supervise the work of local registered midwives. The other 3 are in charge of infant welfare clinics. There are 14 educated Asiatic Health visitors, with the local C.M.B., working under these sisters. Four of these visitors attend poor maternity cases; there is also a panel of medical men who attend such cases and receive fees from the Municipality.

Penang Municipality employs two European sisters and eight locally qualified midwives.

Malacca Municipality employs two health visitors under the supervision of a Government European health sister.

B.—The Singapore Child Welfare Society

This Society was incorporated in 1923 under the presidency of Lady Guillemard. Lady Clementi was pleased to accept the presidency on her arrival in the Colony. The object of the Society is to assist the welfare of mothers, expectant and actual, and of infants and children up to school age (6 years). To avoid overlapping, it leaves the care of infants up to one year as far as possible to the Singapore municipal service.

The committee comprises a nominee of His Excellency the Governor nominees of various local associations, and members elected by the Society. It is not connected with any religious body: it is supported by voluntary contributions and an annual grant from Government of $2,000.

Over $50,000 was raised for it by the Chinese community in 1925.

The Society maintains two centres, each staffed by a trained matron and two Chinese health visitors. Much home visiting is done and milk is distributed to poor families. A baby show, open to all nationalities, is held annually. Over $700 was given in prizes last year. The Society manages a children's playground and expects to establish creches and play rooms shortly.

C.—Government Health Branch

Three Government health sisters, with the assistance of seven health nurses, conduct clinics, and do home visiting in the rural areas of the three Settlements of the Colony.

They are supervised by health officers.

The clinics are held at various centres on stated days and hours.

The educational and preventive aspect of infant welfare work is kept in view; mothers are instructed in the colloquial.

There is a regular weekly itinerary of home visits in connection with the routes of the motor travelling dispensaries.

Treatment of the newly born is carried on in their homes, but other patients are referred to the travelling dispensary, to which many infants are also sent for vaccination.

Roadside advice is also given to mothers and children who collect at points on the scheduled routes.

Baby shows are held in rural districts and lectures are given to women school teachers and to inhabitants of villages and kampongs.

C Class midwives are supervised and instructed.

D.—Combined return shewing visits paid to homes and attendances at Welfare Clinics in 1929.

	Visits to homes		*Attendances at Clinics*	
MUNICIPALITIES :—				
Singapore ...	83,393		17,401	
Penang ...	48,144		—	
Malacca ...	18,484	150,021	3,612	21,013
Singapore Child Welfare Society ...		31,064		17,523
GOVERNMENT :—				
Singapore ...	34,079		5,707	
Penang ...	35,187		26,678	
Malacca ...	19,368	88,634	4,986	37,371
Grand Total ...		269,719		75,907

IV.—ASSOCIATED ACTIVITIES

Women's and children's dispensaries are conducted by Government in Singapore and Penang and by missions in Singapore and Malacca. The dispensaries are staffed by lady medical officers.

The returns for 1929 are:—

	New patients	*Repetitions*	*Total*
Women's and children's Dispensary, Kandang Kerbau, Singapore (8,303 of the 13,800 were children)	13,800	17,431	31,231
Women's and children's Dispensary, Penang	7,302	15,848	23,150
St. Andrew's Mission Dispensary, Singapore	3,621	7,934	11,555
St. David's Mission Dispensary, Malacca	3,373	6,783	10,056
Total ...	28,096	47,996	75,992

Motor travelling dispensaries.—There were 95,981 attendances in 1929, of whom a considerable proportion were women and children.

Children's Wards.—There are wards specially for children at three hospitals in Singapore, under the charge of lady medical officers: many of the children are admitted in a dying condition.

The returns for 1929 are:—

	Admitted	*Discharged*	*Died*
General Hospital, Singapore	731	414	282
Kandang Kerbau Hospital, Singapore ...	469	307	161
St. Andrew's Mission Hospital, Singapore	572	406	146
Total ...	1,772	1,127	589

The St. David's Mission Hospital, Malacca, admitted 800 women and children to a women's and children's ward in 1929. Of these 709 were discharged and 91 died.

There are wards for women at every hospital in the Straits Settlements.

VII.—HOSPITALS, DISPENSARIES AND VENEREAL CLINICS

I.—Total inpatients treated and mortality in all Hospitals of the Colony for the past five years:—

YEAR	Number treated 1st and 2nd Class wards	Number of deaths 1st and 2nd Class wards	Number treated 3rd Class wards	Number of deaths 3rd Class wards	TOTAL 1ST, 2ND AND 3RD CLASS WARDS		Percentage of deaths 1st and 2nd Class wards	Percentage of deaths 3rd Class wards	Percentage of deaths on total treated
					Cases	Deaths			
1925	3,965	198	50,371	4,074	54,336	4,272	4·94	8·80	7·80
1926	7,614	387	60,400	5,346	68,014	5,733	5·09	8·85	8·42
1927	7,192	407	64,483	6,108	71,675	6,515	5·66	9·45	9·06
1928	6,256	410	59,947	5,588	65,203	5,998	6·71	9·33	9·06
1929	7,933	507	61,377	4,817	69,310	5,324	6·39	7·84	7·68

II.—The total number of inpatients treated and the total deaths in the hospitals of the Colony for some of the important diseases are shown in the sub-joined table with the corresponding figures for the preceding three years.

Diseases	1926		1927		1928		1929	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Malarial Fevers	14,293	984	15,426	949	13,181	932	11,036	784
Dysenteries	1,987	575	1,561	511	1,418	501	1,167	306(*a*)
Diarrhœa and Enteritis	928	89	1,412	158	856	123	963	143(*b*)
Beri-beri	1,228	221	1,786	361	1,499	236	1,322	175
Pulmonary Tuberculosis	1,964	853	1,941	952	1,866	920	2,080	910
Enteric Fever	258	85	302	132	347	145	214	78
Ulcers	4,795	4	3,266	5	5,392	5	3,994	12
Venereal Diseases	5,371	115	4,983	95	4,402	151	4,445	110
Ankylostomiasis	4,322	174	4,012	102	3,037	84	2,827	63

(*a*)—Dysentery Amœbic 531 cases ... 148 deaths
,, Bacillary 390 cases ... 102 deaths
,, Unclassified 346 cases ... 56 deaths

(*b*)—Of the total cases 325 were infants. Of the total deaths 77 were infants

III.—The following terminal causes of death were noted in 588 fatal malarial cases:—

	Penang Hospitals	*Malacca Hospitals*	*Tan Tock Seng Hospital*	*General Hospital*	*Total*
Asthma ...	—	—	—	1	1
Coma	27	30	30	2	89
Cardiac failure ...	104	60	91	75	330
Broncho-pneumonia	2	—	9	9	20
Enteritis ...	—	8	—	—	8
Ankylostomiasis ...	—	—	—	12	12
Diarrhoea ...	—	—	—	7	7
Nephritis ...	6	—	—	3	9
Amoebic abscess liver	—	—	—	1	1
Tubercular meningitis	—	—	—	1	1
Cerebral malaria ...	—	—	—	16	16
Tuberculosis ...	—	—	—	6	6
Aortic regurgitation	—	—	—	1	1
Cirrhosis of the liver	—	—	1	2	3
Hypostatic pneumonia	—	—	—	2	2
Lobar pneumonia ...	—	—	—	6	6
Anæmia and ascaris	—	—	—	6	6
Blackwater fever ...	—	—	—	2	2
Enteric ...	—	—	—	2	2
Dysentery ...	—	—	1	4	5
Pleurisy with effusion	—	—	—	1	1
Hyperpyrexia ...	11	2	—	—	13
Cachexia ...	14	23	7	—	44
Pericarditis ...	—	—	—	1	1
Beri-beri ...	—	—	3	9	12
				Total ...	588

IV.—The approximate daily cost of diets per head in the Hospitals of the Colony in 1929 was:—

		$	*c.*
First Class	Full diet	1	83½
First Class	Half ,, ...	1	11½
First Class	Milk ,, ...		28
Second Class	Full diet	1	49
Second Class	Half ,, ...	1	11½
Second Class	Milk ,, ...		28
Third Class (Chinese) ...	Full diet		22½
Third Class (Chinese) ...	Half ,, ...		27½
Third Class (Chinese) ...	Milk ,, ...		11½
Third Class (Malays and Tamils)	Full diet		30½
Third Class (Malays and Tamils)	Half ,, ...		27½
Third Class (Malays and Tamils)	Milk ,, ...		11½
Third Class (Sikhs) ...	Full diet		36
Third Class (Sikhs) ...	Milk ,, ...		16½
Third Class (Bengali Hindus)	Full diet		28½
Third Class (Bengali Hindus)	Milk ,, ...		16½

V.—OUT-DOOR DISPENSARIES

Year	*Total patients*	*Total attendances*
1929	254,219	643,450
1928	190,749	333,106
1927	166,428	313,264
1926	159,903	312,090
1925	154,420	273,841
1924	96,284	167,934
1923	73,343	139,656

The number of out-patients treated for Yaws was 9,990 against 7,870 in the previous year.

The attendances at the Women's and Children's Dispensary, Kandang Kerbau, Singapore, were 31,231 compared with 35,222. In the Women's and Children's Dispensary, Penang, the attendances were 15,948 as against 17,342 in the previous year.

The attendances at the motor travelling dispensary in Province Wellesley were 30,484 and in Penang 31,217, against 17,712 and 31,688 in 1928.

In Singapore, the attendances at the travelling dispensary were 14,504 as against 18,415, and in Malacca 19,776 as against 15,037 in 1928.

VI.—BUILDINGS

General Hospital, Penang.—Reconstruction of and extensive additions to this hospital have been started.

Fifty-four separate huts for lepers at the Pulau Jerejak Leper Settlement have been completed and occupied.

Additions have been made to the district hospitals at Butterworth and Lumut.

VIII.—PRISONS AND MENTAL HOSPITAL

A.—PRISONS

(*a*) Singapore Prison

1. The sanitary condition of the prison was good.

2. With the exception of an outbreak of bacillary dysentery among the prisoners during September and the last quarter of the year, the health of the prisoners was satisfactory. During this outbreak, thirty-eight cases were admitted into the hospital. One case was complicated with an amœbic infection. There were two deaths.

In addition to sanitary measures to check the breeding of flies, the whole prison, including kitchen staff and bakers, were thoroughly searched for "carriers". Their stools were sent to the bacteriologist for examination on three different occasions. Five carriers were discovered and isolated.

Mass treatment with oral vaccine was given on two successive evenings to all prisoners on fasting stomachs. Altogether, nine hundred and fifty prisoners were given the oral vaccine. Out of these only two prisoners suffered with bacillary dysentery, about one month afterwards.

3. *Admissions to Prison Hospital.*—There were one thousand one hundred and six admissions (1,106) including three Europeans and one Eurasian. This with thirty-six (36) remaining from the previous year, gives a total of one thousand one hundred and forty-two (1,142) treated. The average daily number of sick was 40·56 against 33·9 in 1928.

4. *Principal Diseases treated were.*—

Debility	105	Colic Intestinal	39
Scabies	86	Ulcers	37
Venereal Disease	72	Bronchitis	31
Diarrhœa	57	Pulmonary Tuberculosis	18
Bacillary Dysentery	45	Tinea Tricho Phytina	17

5. *Deaths.*—There were twenty deaths in the Prison Hospital giving a death-rate of 1·69 against 2·3 in 1928.

Causes of Death.—

(*a*) Pulmonary Tuberculosis	9	(*g*) Cerebral Hæmorrhage	1
(*b*) Bacillary Dysentery	3	(*h*) Senility and Heart Failure (one complicated with Para Dysentery)	2
(*c*) Enteric Fever	1	(*i*) Heart Failure and Fatty degeneration	1
(*d*) Acute Nephritis	1		
(*e*) Hepatic Cirrhosis	1		
(*f*) Erysipelas	1		

6. Twenty-four cases were transferred to the General Hospital, mostly for operations. Of these, one died.

7. Eighty-five vagrants suffering from serious complaints were transferred to Tan Tock Seng Hospital.

8. Transfers to Leper Asylum—3 (2 Criminals, 1 Vagrant).

9. Transfers to Mental Hospital—8 (5 Criminals, 3 Vagrants).

10. Suicide by Hanging—Three—all criminals.

11. Executions—There were five (3 Chinese, 1 Pathan, 1 Sikh).

12. The figures of the different classes of prisoners were:—

	Criminal	*Civil*	*Vagrant*
(*a*) Total Population in Prison	7,348	5,921	827
(*b*) Average daily number in Prison	1,141	228·3	106
(*c*) Total treated in Prison Hospital	912	92	138
(*d*) Percentage of (*c*) to (*a*)	12·41	1·55	16·68
(*e*) Total deaths in hospital	12	7	1

13. Eight hundred and thirty-seven blood films for Wassermann reaction were taken during the year. Two hundred and eighteen were positive, giving a percentage of 25·98. Eight hundred and twenty-nine N.A.B. injections and eight hundred and ninety-nine Bismostab injections were given.

(*b*) PENANG PRISON

1. The sanitary condition of the Prison was good.

2. *Admissions.*—

(*a*) There were ten cases remaining in Hospital at the beginning of the year. Three hundred and twenty-eight cases were admitted during the year, making a total of 338 cases treated in all as compared with 287 cases in 1928.

(*b*) The daily average number of sick for the year was 14·67 as compared with 12·29 for the previous year.

3. *Diseases.*—The principal diseases amongst prisoners treated as in-patients were:—

Malaria	11	Bowel disorders	31
Tuberculosis	8	Skin diseases	67
Venereal diseases	25	Injuries	13
Diseases of the Respiratory System	14		

Two hundred and seventy-three sufferers from venereal diseases were treated as out-patients.

4. *Deaths*—There were 8 deaths amongst prisoners removed to the General Hospital, 6 from pulmonary tuberculosis, one from pneumonia and one from valvular disease of the heart. Seven of these were amongst vagrants.

5. *Wassermann.*—

(*a*) Eight hundred and forty-one specimens of blood were taken for the Wassermann Test as compared with 1,186 in 1928.

(*b*) Two hundred and sixteen gave positive results as against 322 in 1928.

(*c*) Eight hundred and ten Intravenous Injections of N.A.B. were given as against 291 in 1928.

(*d*) Eight hundred and thirty-one Bismuth injections were given as against 1,055 in 1928.

6. *Prison Strength.*—There were 136 Prisoners and 81 Vagrants remaining at the beginning of the year. Nine hundred and forty-three prisoners and 267 vagrants were admitted during the year. The numbers remaining on 31st December, 1928, were 287 prisoners and 28 vagrants respectively.

Judicial.—There were three cases of judicial hanging.

(*c*) MALACCA PRISON

There were 45 admissions to the Prison Hospital with no deaths, including 9 cases of Malaria. The daily number of sick was 0·12.

The daily average number of inmates was as follows:—

Prisoners	65·12
Remands	5·59
Vagrants	13·14

There were no executions during the year.

B.—SINGAPORE MENTAL HOSPITAL

There remained on 31st December, 1929, seven hundred and thirty males and two hundred and seventy females. Three hundred and thirteen males and eighty-nine females were admitted during 1929. The total treated was one thousand four hundred and two persons.

2. Of the admissions twenty-six males and fourteen females had been previously inmates of Singapore Mental Hospital.

3. Of the total treated one hundred and seven males and twenty-seven females were discharged as recovered, twenty-one males and fifteen females as improved, eight males as not improved, eight males as not insane on admission. Four males and three females absconded. One hundred and one males and twenty-nine females died.

4. There remained on 31st December, 1929, seven hundred and ninety-four males and two hundred and eighty-five females.

5. The average daily number was 768·64 males and 279·13 females.

6. The maximum and minimum daily numbers respectively were nine hundred and ninety-nine and one thousand and eighty.

7. The nationalities of the admissions were:—

	Males	*Females*
British	4	—
Other Europeans	2	1
Eurasians	2	5
Chinese	218	63
Tamils	57	8
Malays and allied races	20	9
Others	10	3

8. The physical condition of those admitted was:—

	Males	Females
Good	141	30
Fair	124	39
Impaired	31	16
Greatly impaired	17	4

9. Twenty-two patients died within a month of admission.

10. Apart from various physical diseases, mental stresses, malaria, alcohol, syphilis, previous attacks, and insane heredity, known to be predisposing or exciting causes of insanity, it is noticeable that in many instances the patients themselves attributed their attacks to "alcohol" and "fever".

11. The recovery rate for the year was 33·33%.

12. Criminal population—there remained on 31st December, 1928:—

	Males	Females
(*a*) Criminal lunatics	29	2
(*b*) Lunatic criminals	8	0
During 1929—Criminal lunatics:—		
(*a*) Number admitted	11	0
(*b*) Number who recovered and were discharged from the hospital	2	0
(*c*) Number who were not insane on admission and were discharged from the hospital ...	4	0
(*d*) Number against whom the charge was withdrawn	1	0
(*e*) Number who died	1	0
Lunatic criminals:—		
(*a*) Number admitted	6	0
(*b*) Number whose sentence expired ...	2	0
(*c*) Number who recovered and were discharged from the hospital	2	0
(*d*) Number who were not insane on admission and were discharged from the hospital ...	1	0
There remained on 31st December, 1929:—		
(*a*) Criminal lunatics	32	2
(*b*) Lunatic criminals	9	0

13. *Mortality.*—Records of the death-rate are available since 1888: this year's death-rate based on the average daily number is the lowest recorded, 12·4 per cent. Chief causes of death were as usual dysentery, general paralysis of the insane and pulmonary tuberculosis, to which must be added pneumonia: these four diseases accounted for two-thirds of the total deaths. One patient died from an assault with a changkul (hoe) by another patient, whilst both were at work. No suicides occurred.

14. *Industries.*—Eight thousand two hundred and fifty-six yards of cotton cloth were woven by the male patients for use in the institution. Thirteen thousand two hundred and forty-three pounds of vegetables were grown for the use of the patients: three hundred fruit tree seedlings and a large number of ornamental trees and shrubs were planted in the grounds. Gardening and other work outside the wards gave employment to a large number of patients. Five thousand four hundred and fifty-three coconuts were harvested, of which part were sold.

15. The number of admissions shows an increase over those of 1928 and the admission rate is larger by 6·6% than the average rate for the past four years.

16. Revenue was $17,600.25.

17. Dr. D. RUSSELL assumed duty as Assistant Medical Superintendent on 29th December, 1929. Dr. LEE KEK SOON assumed duty as Assistant Medical Officer on 1st February, 1929, succeeding Dr. ABDUL SAMAT. Dr. G. B. LEICESTER remained as Assistant Medical Officer throughout the year.

IX.—SCIENTIFIC (Appendices)

A.—Report on Leper Settlements, Singapore, (p. 46).

B.—Report on Pulau Jerejak Leper Settlement, and the Female Leper Settlement, Penang, (p. 47).

C.—Report on Pathological Branch, Straits Settlements, (p. 51).

D.—Report on General Hospital, Singapore, (p. 62).

E.—Report on the treatment of Opium Habit, (p. 70).

F.—Report on Schools, Straits Settlements, (p. 71).

G.—Report on Social Hygiene Branch, Straits Settlements, (p. 78).

A. L. HOOPS,
Principal Civil Medical Officer,
Straits Settlements.

NOTE:—

1. *Meteorology.*—The Meteorological work for the whole of Malaya has been taken over by the Meteorological Branch of the Survey Department, which will issue the Meteorological Report. The returns for the Straits Settlements are however shewn in Table IV, pages 97 and 98.
2. *Analysts' Branch.*—This branch was created a separate department at the beginning of 1929, and its report is to be published separately.

APPENDIX "A"

LEPER SETTLEMENT, SINGAPORE

Annual Report for the year 1929

1. *Male Leper Settlement—*

Remained on 31st December, 1928	50
Admitted during 1929	69
	119

Discharged during 1929	5
Died during 1929	6
Absconded during 1929	—
Transferred to Pulau Jerejak	80
Remaining on 31st December, 1929	28
	119

Immediate causes of deaths—

Sapræmia from septic ulcerations	3
Tuberculosis of lungs	2
Tuberculosis of lungs and amœbic dysentry	1
	6

2. *Female Leper Settlement—*

Remained on 31st December, 1928	64
Admitted during 1929	13
	77

Discharged during 1929	3
Died during 1929	6
Absconded during 1929	3
Remaining on 31st December, 1929	65
	77

Immediate causes of deaths—

Sapræmia from septic ulcerations	2
Sapræmia from advanced leprosy	1
Amoebic dysentery	2
Lobar pneumonia	1
	6

	Male	*Female*
Return of injections administered—		
Oleum Hydnocarpus with .5% Iodine	328	1,373
Alepol	703	1,002
Results of treatment—		
Cured	5	3
Definite improvement	4	6
Slight improvement	7	18
Stationary	10	34
Retrogressing	2	4

Treatment—

Intercurrent diseases such as ankylostomiasis, beri-beri, pulmonary tuberculosis and malaria were treated before anti-leprotic treatment was actually begun.

The main drugs used in treatment were alepol and oleum hydnocarpus with 0.5% iodine.

Alepol is used in a 1% solution with 0.5% acid carbolic. This is given intravenously or subcutaneously twice weekly.

The commencing dose for adults is 1 cc. increasing gradually by 0.5 cc. till a maximum dose of 5 cc. is reached.

The drugs are well tolerated and the results are encouraging.

Assistant Surgeon N. W. Ahin was in charge of both Settlements throughout the year.

APPENDIX "B"

PULAU JEREJAK SETTLEMENT

Annual Report for the Year 1929

Administration—

The Chief Medical Officer and the Senior Health Officer, Penang, visited throughout the year.

The resident staff consisted of: —

One Medical Superintendent (Dr. A. H. Wheatley).

One Lay Superintendent.

Nine Dressers.

The lay superintendent was away on home leave from March to November, 1929.

Extensive anti-malarial work was carried out at the various camps, with the result that there have been no cases of malarial fever throughout the year.

The total rainfall was 2054 millimetres as compared with 2396 millimetres in 1928.

Water boats had to bring water from Penang, owing to the severe droughts experienced: 8,360 tons of water were brought on 111 occasions A small reservoir was built at the Eurasian Camp. All the reservoirs are water tight now.

Camp E.—Thirty-four more huts were completed, making a total of 54 huts at this camp. Each hut accommodates three inmates.

The grounds at this camp have been further filled in, and levelled. Shady trees have been planted, and the whole camp is a model settlement.

Ninety-five cases, many of whom are losing all signs of their leprous condition, have been transferred there.

Old Settlement Camp.—Ward 9 has been demolished to the improvement of the light and ventilation of the wards behind it.

Eurasian Camp.—Four more rooms were erected, making a total of 16 rooms.

Inmates.—There were 218 admissions as compared with 166 of 1928. Forty-six admissions were voluntary.

The daily average number was 839.25 as compared with 743.97 of 1928.

The greatest number on one day was 864 on 1st September, 1929.

Treatment.—The number of cases treated for the year was 990, and the deaths 105, a percentage of 10·59%, the lowest on record.

The following figures show the steady decrease in the death-rate:—

1921 ...	... 655	treated	with	201	deaths	30·68%
1922 ...	... 699	,,	,,	186	,,	26·06%
1923 ...	... 688	,,	,,	140	,,	20·34%
1924 ...	... 726	,,	,,	130	,,	17·90%
1925 ...	... 831	,,	,,	117	,,	14%
1926 ...	... 850	,,	,,	117	,,	13·76%
1927 ...	... 871	,,	,,	122	,,	14%
1928 ...	... 897	,,	,,	102	,,	11·37%
1929 ...	... 990	,,	,,	105	,,	10·60%

Treatment has been given to all for their leprous condition. The advanced cases take Hydnocarpus Wightiana Oil in capsules in a dosage of 5 to 30 minims, twice daily, or the Hydnocarpus Kernels powdered in 20 grain doses one daily. Four hundred and seventy-six cases have been under special injection treatment with Alepol with good results; 28 cases became negative; 231 greatly improved; 190 improved and 27 not improved.

Considering that early cases are seldom admitted, and that the duration of the disease prior to admission ranges from 3 to 10 years, the results are encouraging.

Three cured cases left the Settlement to work in Penang; several others, who have become negative, have been employed at the Settlement in various capacities.

School and Recreation.—Tuition in English and Chinese has been given regularly to 21 lads.

The Boy Scouts Patrol of 21 lads has wonderfully improved under the able direction of Mr. Ooi Peng Guan, a cured leper, who is now employed as a dresser at the Settlement. The patrol has now its own fife and drum band. Thirty scouts from Penang visited the boy scouts here, and expressed admiration at the smart turn out.

The Eurasian Brass band under the direction of a Filipino inmate has improved. The bandmaster has been cured and is shortly to be discharged to Penang. Another inmate is being trained to act as bandmaster.

Agriculture.—The piggery continues to be successfully worked by the inmates, and has supplied pork to the inmates in festival days.

Every effort has been made to keep the inmates occupied. Extensive vegetable and fruit gardens have been opened out at all the camps. The maintenance of the grounds and buildings is entirely carried out by the inmates.

Two hundred and twenty-four Hydnocarpus Wightiana and Anthelmintica trees which were planted in 1927 are in flourishing condition.

Visiting Committee.—For the first time, the various camps have been visited monthly by a Committee of 2 European and 10 Chinese gentlemen, two members visiting on each occasion. The Chinese visiting members kindly presented various Chinese musical instruments to the different camps.

The Hindus of Penang erected a temple for the Indian inmates here.

At Chinese New Year, each inmate received twenty-five cents as a gift from the anti-mendicity fund.

There have been numerous visitors during the year, and all have expressed their admiration of the contentment and comfortable housing of the inmates.

The following Returns are attached:—

(*a*) Showing the number of admissions: the total number of deaths; total number of inmates, and the daily average for 1929.

(*b*) The nationalities of the inmates.

(*c*) The occupation of the inmates.

TABLE *A*

SHOWING THE NUMBER OF ADMISSIONS, TOTAL NUMBER OF DEATHS, TOTAL NUMBER OF INMATES, AND THE DAILY AVERAGE FOR 1929.

Year	Remained from Previous year	Admissions					Total	Deaths	Percentage of deaths to total treated	Daily average inmates
		Colonial	Perak	Selangor	Kedah	Kelantan				
1929 ...	772	116	2	...	35	15	990	105	10.59%	839.25

TABLE *B*

SHOWING THE NATIONALITIES OF INMATES FOR 1929.

Nationalities	Colonial	Perak	Selangor	Kedah	Kelantan	Total
Bengali Islam ...	3	...	...	...	...	3
Bugis	I	...	...	...	...	I
Cantonese ...	192	60	4	12	11	279
Eurasian ...	13	I	...	...	...	14
Filipino	I	...	...	...	...	I
Fuichew ...	2	...	...	I	...	3
Hockchew ...	5	...	...	...	...	5
Hockien	135	15	3	9	I	163
Hooichew ...	4	...	...	2	...	6
Howchew ...	3	...	...	...	...	3
Hylam	50	2	I	7	...	60
Hylock Hong ...	I	...	...	...	...	I
Southern Indian Islam	7	...	...	2	...	9
Javanese ...	...	I	...	...	...	I
Kheh	83	29	22	17	2	153
Looichew	3	...	...	...	...	3
Macow ...	2	I	23	12	...	38
Malay	4	...	...	...	I	5
Shanghainese ...	I	...	...	...	...	I
Siamese	...	...	...	I	...	I
Tamil	70	17	3	33	...	...
Teochew ...	93	3	I	20	...	117
Total ...	673	129	57	116	15	990

TABLE C

Shows the Occupation of Inmates Previous to Admission

Occupation	Colonial	Perak	Selangor	Kedah	Kelantan	Total
Barber ...	4	..	1	...	...	5
Blacksmith ...	11	1	...	...	...	12
Boatman ...	4	...	...	...	...	4
Cart-driver ...	6	...	...	2	...	8
Carpenter ...	25	6	5	4	1	41
Cake Seller ...	2	...	...	...	...	2
Chick Maker ...	1	...	...	...	...	1
Chinese Clerk	6	..	...	...	...	6
Chinese Teacher	...	...	1	...	...	1
Cigar Seller ...	...	1	...	...	...	1
Conductor ...	1	...	...	...	...	1
Cook ...	6	1	...	...	...	7
Contractor ...	2	...	...	...	...	2
Basket-maker ...	1	...	...	...	...	1
Cooly ...	242	26	26	57	11	362
Dhoby ...	9	1	...	...	...	10
Dentist ...	1	...	...	...	...	1
Engine Cleaner	...	...	1	...	...	1
Fowl-Seller ...	1	...	...	1	...	2
Fitter ...	6	1	1	...	...	8
Fisherman ...	5	...	...	...	...	5
Gardener ...	21	4	...	12	...	37
Glass Cutter ...	3	...	...	1	...	4
Gate-Keeper ...	1	...	...	...	...	1
Gold Smith ...	3	...	1	1	...	5
Hawker ...	30	11	2	2	...	45
Handcart puller	6	...	...	...	...	6
Hospital Attendant ...	1	...	...	...	...	1
Mason ...	13	1	4	1	...	19
Mining Cooly	2	31	...	...	...	33
Motor car driver	3	...	...	...	...	3
Musician ...	2	...	...	...	...	2
Nil ...	103	7	...	12	1	123
Paddy planter ...	2	...	...	1	...	3
Pork-seller ...	1	...	...	...	...	1
Painter ...	1	...	...	...	...	1
Peon ...	2	...	...	...	...	2
Rickshaw puller	4	...	...	...	...	4
Rubber tapper	75	16	7	8	1	107
Scavenger ...	1	1	...	...	...	2
School boy ...	14	7	...	...	...	21
Shoe maker ...	3	...	...	...	...	3
Sailor ...	3	...	...	...	...	3
Shop-keeper ...	9	...	...	3	...	12
Stone-breaker	2	...	...	...	...	2
Salesman ...	1	...	...	...	...	1
Tinker ...	1	...	...	1	...	2
Tailor ...	6	...	...	...	...	6
Time-keeper ...	1	...	...	...	...	1
Undertaker ...	1	...	...	...	...	1
Vegetable seller	1	...	...	1	...	2
Vegetable planter ...	7	2	4	4	1	18
Watchman ...	...	1	...	...	...	1
Weaver ...	...	...	...	1	...	1
White washer ...	4	...	...	...	...	4
Wood cutter ...	12	10	4	4	...	30
Total ...	673	129	57	116	15	990

REPORT OF FEMALE SETTLEMENT, JELUTONG, PENANG, FOR THE YEAR 1929

Remained 31-12-28	51
Admitted	18
Died	5
Absconded	3
Transferred	Nil
Discharged	Nil
Remained 31-12-29	61
Average daily No. of patients	55.2

Treatment is as in the male settlement: the majority of cases show improvement.

Result.—Of all the cases 12 show marked improvement. One has already been certified as fit for discharge and arrangements are being made for her removal from the settlement. Four others, it is hoped, will be fit for discharge in another two or three months.

Two cases appear to be stationary and three show no improvement.

The rest show varying degrees of improvement.

General.—Another bathroom has been built because of the increasing number of patients.

The garden is looked after by the toti assisted by the inmates.

The inmates are being encouraged to start a flower garden so that they may have their own flowers for the wards.

There is a fowl run and the inmates have quite a good number of fowls and ducks. Sugar cane and vegetables are grown in the garden in front of the wards.

APPENDIX "C"

REPORT ON THE PATHOLOGICAL BRANCH, STRAITS SETTLEMENTS

by Dr. J. C. Tull, *Government Pathologist, Singapore.*

I.—SINGAPORE

The total number of specimens examined during 1929 was 5,896, including 4,583 sera for complement fixation test for syphilis, 512 pieces of tissue for histological diagnosis, and 101 police exhibits for the presence of human blood.

As in previous years, the routine clerical laboratory work from the prison has been done in this laboratory.

2. Autopsies at Tan Tock Seng Hospital Mortuary:—

Total number	1,557
Number at which protocols were taken	1,134
Coroner's Cases	278
Autopsies on patients dying within 24 hours of admission to hospital	221
Autopsies on patients dying within 48 hours of admission to hospital	109

3. Return showing immediate cause of death in cases in which protocols were taken:—

Injuries from motor car accidents	39
,, ,, gun-shot wounds	8
,, ,, stab-wounds	12
,, ,, other assault wounds	5
Asphyxia from drowning	5
,, ,, hanging	19
,, ,, strangulation	2
Cut throat	1
Poisoning	5
Burns	2
Other accidents	28
Bodies too decomposed for autopsy	16
Beri-beri	80
Dysentery—amœbic	59
Dysentery—bacillary	42
Typhoid fever	26
Pneumonia—lobar	155
Pneumonia—broncho	41
Malaria—acute subtertian	112
Malaria—benign tertian	3
Malaria—quartan	1
Malaria—malarial cachexia	7
Endocarditis—aortic	23
Endocarditis—mitral	1
Aneurysm—aortic	3
Myocarditis	35
Pericarditis	1
Meningitis—tuberculous	3
Meningitis—pneumococcal	3
Malignant neoplasms	44
Arterio-sclerosis	5
Acute generalised peritonitis	4
Tuberculosis—pulmonary	149
Tuberculosis—intestinal	2
Tuberculosis—generalised	2
Cirrhosis liver	29
Nephritis—acute	1
Nephritis—chronic	35
Septic pyelo-nephritis	7
Cystic kidneys	3
Cerebral hæmorrhage	5
Schistosomiasis Japonicum	2
Purulent cholecystitis and cholangitis	4
Gastric ulcer, chronic, with hæmorrhage	5
Gastric ulcer, chronic, with perforation and peritonitis	3
Duodenal ulcer, chronic, with perforation and peritonitis	4
Cholæmia	1
Septicæmia	35
Bubonic plague	1
Acute lymphoid leukæmia	1
Splenic abscess	1
Anæmia of undetermined origin	1

4. Tan Tock Seng Hospital Mortuary

Main causes of death, excluding Coroner's cases, by months

—	No. of Autopsies	Malaria	Tuberculosis	Pneumonia	Dysentery	Beri-beri	Typhoid	Syphilis	Coroner's cases	Others
January	124	12	30	15	13	7	2	7	13	25
February	99	5	20	19	9	4	2	11	14	15
March	106	5	26	12	5	5	2	3	17	31
April	101	13	27	14	3	3	1	2	16	22
May	147	22	39	16	10	5	1	—	30	24
June	141	17	26	15	7	10	1	4	36	25
July	144	23	32	15	12	7	2	1	26	26
August	117	16	23	14	3	3	4	1	24	29
September	126	21	33	9	9	3	4	3	23	21
October	155	35	40	13	7	7	3	1	22	27
November	154	44	22	13	11	8	1	5	28	22
December	143	30	23	12	5	10	1	3	29	30
Total ...	1,557	243	341	167	94	72	24	41	278	297

5. AUTOPSIES AT THE CENTRAL MORTUARY, GENERAL HOSPITAL

Total number of autopsies	457
Total number at which protocols were taken ...	457
Number done on patients dying within twenty-four hours of admission to hospital	9
Return showing immediate cause of death:—	
Injuries from motor-car accidents	22
,, ,, gun-shot wounds	6
,, ,, stab-wounds	10
,, ,, other assault wounds	6
Asphyxia—drowning	23
Asphyxia—hanging	16
Asphyxia—suffocation	1
Cut throat	2
Poisoning	7
Other accidents	28
Beri-beri	1
Cerebro-spinal meningitis	1
Dysentery—amœbic	7
Dysentery—bacillary	6
Amœbic abscess of liver	2
Typhoid fever	14
Pneumonia—lobar	38
Pneumonia—broncho	31
Malaria—acute subtertian	42
Endocarditis—aortic	10
Aneurysms—aortic	5
Myocarditis	9
Pericarditis	1
Meningitis—tuberculous	4
Malignant neoplasms	16
Visceral syphilis	12
Acute general peritonitis	5
Subphrenic abscess	1
Acute intestinal obstruction	1
Cholæmia	2
Acute appendicitis, with peritonitis	2
Gastric ulcer, with hæmorrhage	2
Septic cholangitis	7
Hepatic cirrhosis	2
Pulmonary tuberculosis	50
Nephritis—acute	4
Nephritis—chronic	17
Diabetes	1
Septicæmia	4
Empyema of pleura	3
Gangrene lung	2
Bubonic plague	2
Meningitis pneumococcal	6
Hydrocephalus	1
Cerebral hæmorrhage	3

6. Main causes of death, by months, excluding Coroner's cases, Central Mortuary, General Hospital

—	No. of Autopsies	Malaria	Tuberculosis	Pneumonia	Dysentery	Beriberi	Typhoid	Syphilis	Coroner's cases	Others
January	29	—	2	2	1	2	3	—	13	6
February	36	1	1	3	1	—	—	1	23	6
March	37	—	—	5	2	1	—	—	25	4
April	41	2	—	5	—	—	—	1	28	5
May	43	3	—	3	—	1	2	—	27	7
June	47	5	5	5	—	2	—	—	25	5
July	47	4	4	6	2	2	1	—	24	4
August	35	—	3	4	1	—	3	—	22	2
September	28	1	1	2	—	1	2	1	17	3
October	39	6	2	1	1	1	4	—	17	7
November	45	1	—	6	1	3	1	—	28	5
December	30	1	1	2	1	—	—	2	22	1
Total ...	457	24	19	44	10	13	16	5	271	55

7. MAIN CAUSES OF DEATH DURING 1929, AS COMPARED WITH 1928

(*a*) TAN TOCK SENG HOSPITAL MORTUARY

Year	Autopsies	Malaria	Tuberculosis	Pneumonia	Dysentery	Beri-beri	Typhoid Fever	Coroner's cases
1928	1,846	232 or 12·5%	365 or 19·7%	254 or 13·7%	156 or 8·4%	128 or 6·3%	83 or 4·4%	279 or 15·1%
1929	1,557	243 or 15·6%	341 or 23·4%	167 or 16·3%	94 or 10%	72 or 8·2%	24 or 5·3%	278 or 17·8%

(*b*) CENTRAL MORTUARY, SEPOY LINES

Year	Autopsies	Malaria	Tuberculosis	Pneumonia	Dysentery	Beri-beri	Typhoid Fever	Coroner's cases
1928	518	20 or 3·8%	22 or 4·2%	46 or 8·8%	9 or 1·7%	11 or 2·1%	18 or 3·4%	311 or 60%
1929	457	24 or 5·2%	19 or 4·1%	44 or 9·6%	10 or 1·9%	13 or 2·4%	16 or 3·9%	271 or 60% (Approx.)

8. The main causes of death as ascertained at autopsy were much the same as in 1928. Pneumonia showed a moderate increase. The apparent discrepancy between statistics from the two mortuaries is due to the fact that autopsies are perfomed upon a much larger percentage of patients at Tan Tock Seng Free Hospital than at the General Hospital.

There has been no serious outbreak of acute infectious or contagious disease.

Medico-legal cases continue to form a high percentage of the totals

Staff.—

Lee Ah Moy, a familiar figure in this Branch, and mortuary keeper for more than twenty years, retired towards the end of the year because of ill-health. He had a record of long and faithful service.

Dr. J. R. Jacob served as first Assistant Pathologist from May to the end of the year.

II. PENANG

	1928	*1929*
1. Laboratory Examinations.		
Blood films.—Total number examined ...	17,670	15,503
Positive to subtertian malaria ...	2,553	1,679
Positive to quartan malaria	26	23
Positive to benign tertian malaria ...	853	579
Stools.—Total number examined microscopically	17,096	14,152
Positive to ankylostome ova	5,714	4,958
Positive to entamœba histolytica ...	171	144
Total number examined culturally ...	995	709
Positive to B. typhosus	5	6
Positive to B. dysenteriæ (Shiga) ...	11	13
Positive to B. dysenteriæ (Flexner) ...	23	9
Positive to Salmonella	20	8
Urine.—General examinations	14,508	15,930
Estimations of albumen	15	38
Estimations of sugar	204	72
Cultural examinations	24	23
Sputum.—Total number examined ...	2,992	3,130
Positive to B. tuberculosis	358	470
Films for Gonococci.—Total	680	846
Positive	319	402
Films for B. Lepræ.—Total	241	404
Positive	50	69
Films for B. Diphtheriæ.—Total	66	130
Positive	8	18
Cultures for B. Diphtheriæ.—Total ...	87	142
Positive	16	24
Films for other organisms.—	1,038	274
Dark ground examinations for spirochæta pallida.—	230	141
Possitive	99	70
Blood cultures.—	34	120
Other cultures.—	84	56
Blood counts.—	136	240
Blood chemical examinations.—	33	54

	1928	*1929*
Widals.—	166	180
Positive to B. typhosus	29	30
Positive to B. para. A.	—	11
Positive to B. para. B.	2	2
Positive to B. para. C.	—	—
Wassermann reactions.—	5,921	5,743
Positive	—	—
Wassermann reactions.—	5,921	5,743
Positive	1,973	1,541
Kahn reactions.—	—	1,345
Positive	—	745
Agglutination tests for organisms.— ...	36	65
Animal inoculations.—	42	79
Pathological sections.—	32	54
Bacteriological examinations of water.— ...	93	80
Vaccines prepared.—	8	11
Cerebro-spinal fluid, general examinations.—	9	5
Cerebro-spinal fluid, Lange tests.— ...	8	3
Postmortem examinations.—	619	306
Other examinations.—	56	87
Total number of examinations.— ...	63,147	59,950

2. POSTMORTEM EXAMINATIONS PERFORMED ON HOSPITAL PATIENTS AT THE DISTRICT AND GENERAL HOSPITALS, PENANG, DURING THE YEAR 1929

Diseases	*Deaths*	*Diseases*	*Deaths*
Amœbic Dysentery ...	28	General peritonitis ...	1
Chronic Malaria	27	Miliary tuberculosis ...	1
Lobar Pneumonia ...	15	Carcinoma of Liver ...	1
Pulmonary Tuberculosis ...	13	Cerebral Hæmorrhage ...	1
Acute Malaria	11	Abscess of Lung ...	1
Bacillary dysentery ...	8	Septicæmia	1
Sapræmia	7	Tuberculosis of Intestines ...	1
Cirrhosis of Liver ...	6	Sarcoma of Jaw	1
Beri-beri	5	Carcinoma of Oesophagus ...	1
Ankylostomiasis	4	Enteric fever	1
Tuberculous Meningitis ...	4	Carcinoma of Palate ...	1
Chronic Interstitial Nephritis	4	Pyelonephritis	1
Liver abscess	3	Suppurative cholecystitis ...	1
Pleurisy	3	Suppurative pylephlebitis ...	1
Carcinoma of stomach ...	3	Vascular syphilis	1
Brancho-Pneumonia ...	3	Cardiac syphilis	1
Chronic Parenchymatous Nephritis	3	Visceral syphilis	1
Valvular disease of Heart ...	3	Lympho-sarcoma of Cæcum	1
Aortic aneurysm	2	Acute ascending Paralysis ...	1
Empyema	2		
Acute pericarditis	2	Total	176
Pyonephrosis	1		

3. Postmortem examinations performed on Coroner's cases in Penang, during the year 1929

Diseases	*Deaths*	*Diseases*	*Deaths*
Acute Malaria	4	Ruptured Liver	3
Lobar Pneumonia	13	Fractured Skull	12
Broncho Pneumonia	2	Fractured sternum	1
Pleurisy	1	Fractured Femur	1
Abscess of Lung	3	Fractured Vertebræ	1
Pulmonary Tuberculosis	6	Stab wounds of Liver	3
Amœbic Dysentery	1	Stab wounds of Heart	1
Septicæmia	3	Stab wounds of Neck	1
Abscess of Liver	1	Stab wounds of Intestines	1
Perforated Gastric Ulcer	1	Stab wounds of Stomach	1
General Peritonitis	1	Cut throat	2
Valvular Disease of Heart	2	Electrocution	2
Cardiac syphilis	1	Still birth	2
Visceral syphilis	2	Asphyxia from Hanging	9
Vascular syphilis	3	Asphyxia from Drowning	13
Ruptured aortic aneurysm	2	Poisoning by Acetic Acid	1
Chronic Intestitial Nephritis	1	Poisoning by Opium	2
Carcinoma of Larynx	1	Poisoning by Sulphuric Acid	1
Beri-beri	1	Poisoning by Caustic soda	1
Multiple injuries	4	Poisoning by Snake bite	1
Ruptured Bladder	2	Decomposed	11
Ruptured Pancreas	1		
Ruptured intestines	2	Total	130
Ruptured Spleen	2		

4. Dr. J. A. Cowan was in charge of the laboratory from 1st January, 1929 to 26th July, 1929, when he proceeded on leave. Dr. H. O. Hopkins was in charge for the remainder of the year.

Dr. J. R. Jacob, Assistant Pathologist, attached to the laboratory, was transferred to Singapore on 3rd May, 1929, and Dr. L. S. da Silva took his place from that date.

III. MALACCA

1. *Staff.*—

Assistant Pathologist C. Subrahmanyam was in charge throughout the year.

In addition to the Laboratory Assistant, L. C. Mittra, another dresser was assisting in the laboratory in the mornings only.

2. *Estate dressers' class.*—

The practical laboratory instruction for this class was given by the Assistant Pathologist. The class met in two sections, each section for two hours once a fortnight for five months. The teaching was made as practical as possible. It consisted in the preparation of blood films for malaria, examination of fæces for helminth ova and amœbæ, examination of urine, and the commoner methods of staining for bacteriological examination of pus, sputum, etc.

3. *Work done.*—

Total number of specimens examined, including autopsies	14,049
Autopsies on Coroner's cases	56
Autopsies on Hospital cases	46

4. *Malaria.*—

Blood films for malarial parasites	2,210
Positive	640
Types of infections.—	
Subtertian	349
Benign tertian	151
Quartan	105
Subtertian and Benign tertian	25
Subtertian and Quartan	4
Benign tertian and Quartan	3
Subtertian, Benign tertian and Quartan	3
Incidence of.—	
Subtertian	381
Benign tertian	183
Quartan	112

5. *Miscellaneous examinations.*—

Animal inoculations	3
Blood counts—total leucocyte	62
total R. B. C.	4
differential count	45
Blood films for Babesia bovis (positive—1)	3
Blood films of dog (positive to filaria)	1
Films from human hydrocele fluid (positive to filaria)	1
Blood sugar estimation and sugar tolerance test	5
Cerebro-spinal fluid examination	3
Cultures from blood	9
Cultures for B. Diphtheria (positive—10)	135
Culture for Gonoccus	1
Cultures for Meningococcus	9
Cultures for Stools	33
Cultures for urine	3
Films for B. Anthracis	4

Films for Ducrey's bacillus	2
Films for B. Lepræ	72
Positive	25
Films for Gonococcus	365
Positive	134
Films for Lepto-spira ictero hæmorrhagica	4
Films for Meningococcus	16
Positive	3
Films for T. pallidum (dark ground illumination)	7
Positive	1
Medico-legal exhibits for examination	39
Sections—Histological	42
Vaccine—autogenous	2
Sputum	833
Positive to B. Tuberculosis	148
Positive to Pneumococcus	48
Sputum for estimation of albumin	5
6. *Helminth infections.—*	
Stool examined	4,422
Positive to ova	3,553
Types of infection.—	
Ankylostome	841
Ascaris lumbricoides	271
Trichuris trichiura	436
Oxyuris vermicularis	21
Ankylostome and A. lumbricoides	202
Ankylostome and T. trichiura	685
Ascaris lumbricoides and T. trichiura	428
Ankylostome, A. lumbricoides and T. trichiura	669
Incidence of.—	
Ankylostome	2,397
Ascaris lumbricoides	1,368
Trichuris trichiura	2,218
Oxyuris vermicularis	21
7. *Other examination of stools.—*	
Stool for protozoa, etc.	297
Positive to Entamœba histolytica	67
Positive to Entamœba coli	2
Positive to Strongyloides stercoralis	6
Positive to Tænia saginata	2
Positive to Trichomonas hominis	14
Stool for occult blood	36
Positive	24
8. *Urine for general examination.*—chemical and microscopical	3,849
Urine for estimation of sugar	71
Urine for estimation of albumin	2
9. Wassermann reaction	1,161
Positive	531

10. Widal reaction	64
Positive	24
Types of reaction.—	
Positive to B. typhosus	17
Positive to B. typhosus and B. paratyphosus A.	1
Positive to B. paratyphosus A. and B.	1
Positive to B. paratyphosus	2
Positive to B. typhosus and B. paratyphosus A. and A.	3
Other agglutination tests	19
11. *Water examinations.*—Chemical and bacteriological	28
12. Other examinations	80

APPENDIX "D"

GENERAL HOSPITAL, SINGAPORE

Dr. J. Gray, Chief Medical Officer, was in administrative charge throughout the year.

1. *Work done.*—A comparative Table for the years from 1925 to 1929 is as follows:—

Year	*Number of patients treated in 1st & 2nd Class Wards*	*Died*	*Percentage*	*Number of patients treated in 3rd Class Wards*	*Died*	*Percentage*
—	—	—	—	—	—	—
1925 ...	2,381	126	5·29	7,962	675	8·49
1926 ...	3,100	216	6·96	9,901	839	8·45
1927 ...	3,775	280	7·42	10,842	1,037	9·57
1928 ...	4,137	308	7·44	11,246	881	7·83
1929 ...	4,727	389	8·23	11,974	944	7·88

2. *Chief Diseases.*—The chief diseases treated in the General Hospital are stated below and compared with previous years:—

Diseases		*1929*	*1928*	*1927*	*1926*	*1925*
—		—	—	—	—	—
Malaria ...	...	1,821	2,094	1,967	1,691	841
Enteric Fever	...	132	244	228	147	89
Tuberculosis	...	621	545	481	388	284
Dysentery Amœbic	...	107	161	165	104	—
Dysentery Bacillary	...	62	50	53	149	133
Dysentery Unclassified		25	23	27	23	—
Syphilis and Gonorrhœa		783	889	783	862	650
Beri-beri ...	...	308	346	237	190	149
Pneumonia	Lobar ...	264	286	319	237	181
	Broucho ...	147	100	104	80	56
	Unclassified	17	7	28	—	—
Ankylostomiasis	...	700	239	317	569	393

3. *Malaria.*—One thousand eight hundred and twenty-one cases treated. A decrease of 273 cases treated as compared with 1928. Five hundred and nine are returned as unclassified. Some of these had commenced treatment before admission. Others probably had scanty parasites which were not found in the films.

Pneumonia.—Lobar Pneumonia 264 cases, a decrease of 22 cases.
Mortality rate 45·40%.
Total Pneumonia 428 cases, an increase of 35. cases.
Mortality rate 58·17%.

Syphilis.—Four hundred and twenty-seven cases were treated showing a decrease of 64.

Diarrhœa in Infants under 2 years.—Thirty-three deaths in 72 cases show that very little can yet be done unless these cases are admitted earlier.

Pulmonary Tuberculosis.—505 cases were treated showing an increase of 71.

Beri-beri.—Three hundred and eight cases were treated with 63 deaths,

4. The physician staff at present comprises:—

Professor R. B. Hawes	...	Senior Physician.
Dr. V. H. Norris	...	Physician.
Dr. C. E. Smith ...	...	House Physician to the 1st and 2nd Class Wards.
Dr. E. S. Monteiro	...	House Physicians to the 3rd Class Male Wards.
Dr. B. Sheares ...	...	
Dr. G. Gunatilaka	...	Lady House Physician to the 2nd and 3rd Class Female Wards.

Laboratory and Library.—These two departments are very popular. The Library contains a number of valuable books of reference and the staff enjoys the full benefits therefrom.

Equipment in the laboratory is sufficient—breakages have been very few. Thanks are due to the departments of bacteriology and pathology for their help with chemicals and stains. Six thousand four hundred and thirty specimens were examined in the clinical laboratory by the medical staff. There are now two dressers in the routine laboratory where the examinations for the year amount to 33,825.

Specimens from all the wards now reach the laboratories satisfactorily, due to the increased supervision exercised over the ward toties.

After treatment.—The system of issuing printed instructions to 3rd class patients on their discharge from hospital is a great success: few of them are re-admitted for the same disease.

Special cases are furnished with a letter to their private doctor in which is stated the diagnosis, examinations done, treatment carried out and progress. These cases include, gastric and duodenal ulcers, diabetes mellitus, syphilis, malaria and the dysenteries. Visits from these patients are, as they should be, on the increase.

Electrocardograph:—A portable instrument manufactured by the Victor Co. has been installed. This instrument is very easy to work, but unfortunately interference from electric fans is serious problem. There is a fair amount of material for this branch of medicine.

Scarlet Fever.—One case, a Dutchman, from the motor ship "Insulinde" was admitted. A rather serious outbreak of the disease had occurred on the ship.

Enteric Fever.—Total cases treated number 132 with a mortality rate of 31·8% compared with 244 cases and mortality rate of 31·5% in the previous year. It must be noted that of the 42 deaths about 20 occurred in the case of patients who were in hospital for less than 48 hours or who were operated upon for general peritonitis following perforation.

Lead Poisoning.—Cases continue to be admitted from the Government Printing Office and from the Printing Department of the General Post Office. Applicants for billets in these two departments are examined for the presence of lead. Many of these applicants have been working in printing departments in India before coming to this country and several showed lead in the urine

Anti-Rabic Treatment.—Dr. V. H. NORRIS proceeded to the Institute of Medical Research, Kuala Lumpur, in October for instruction in this. The treatment is now available here. From October to the end of the year, 6 persons, who were bitten by dogs, sought treatment. Two of them received treatment, the dogs in both instances were not found: the remaining 4 did not receive treatment as the dogs were pronounced to be free from rabies by the Veterinary Department of the Municipality.

5. The Surgeons on the Staff comprised:—

Mr. C. J. SMITH ...	... Senior Surgeon.
Mr. KENNETH BLACK ...	... Professor of Surgery.
Mr. B. M. JOHNS ...	... Professor of Clinical Surgery.
Dr. E. L. ROBERT ...	... House Surgeon (January to June).
Dr. W. G. EVANS ...	... House Surgeon.
Mr. W. A. BELHATCHET	... Assistant Surgeon and Senior Tutor in Surgery.

6. RETURN OF OPERATIONS

From 1st January, 1929 to 31st December, 1929.

Total Operations ... ... = 1,852
Deaths ... ... = 47

Pathological condition and nature of operation	Total No. of cases	Cured or Relieved	Died
Amputations.—			
Forearm or hand	2	2	...
Foot or leg	9	7	2
Fingers	3	3	...
Toes	2	2	...
Re-amputations	4	4	...
Operations on Muscles, Tendons and Ligaments.—			
Tenotomy	2	2	...
Suturing divided tendon ...	3	3	...
Removal of ganglion	1	1	...
Bakers cyst	1	1	...
Operations of Heart and Blood Vessels.—			
Peri Arterial sympathectomy ...	7	7	...
Ligature of arteries	1	1	...
Excision of varicose veins of legs	2	2	...
Injection of varicose veins ...	26	26	...
Angioma	1	1	...
Drainage pericardium ...	1	...	1
Carried forward ...	65	62	3

Pathological condition and nature of operation	Total No. of cases	Cured or Relieved	Died
Brought forward ...	65	62	3
Operations of Lymphatic Glands.—			
Excision of lymphatic glands ...	19	19	...
Dissection glands neck ...	6	6	1
Incision of glands	9	9	...
Removal of Foreign Body.—			
Hand	6	6	...
Arm	2	2	...
Leg	1	1	...
Jaw	1	...	1
Operation on Bones.—			
Sequestrectomy	12	12	...
Plasting fractures	11	11	...
Bone grafting	5	5	...
Plaster of paris	26	26	...
Osteomylitis	8	8	...
Setting fractures	23	23	...
Wiring or pegging fractures ...	10	10	...
Osteotomy	4	4	...
Excision of coccyx	1	1	...
Removal of wire from fracture ...	2	2	...
Removal of plate	4	4	...
Cyst of bone	2	2	..
Excision of scaphoid and other bones	2	2	...
Hallux valgus	1	1	...
Toilet of compound fractures ...	2	2	...
Operation of Joints.—			
Arthrotomy	6	6	...
Aspiration	14	14	...
Reduction of dislocation ...	6	6	...
Excision of semilunar cartilage ...	4	4	...
Mobilisation of joint	1	1	...
Excision joint	1	1	...
Plaster case to hip joint ...	1	1	...
Irrigation	5	5	...
Manipulation	36	36	...
Plaster of Paris	8	8	...
Compound dislocation ...	2	1	1
Operations on skull.—			
Trephining	10	9	1
Abscess, intracranial	1	1	...
Operations on Ear.—			
Radical mastoid operations ...	15	13	...
Plastic	2	2	2
Incision of typanic membrane ...	1	1	...
Removal of papilloma	1	1	...
Carried forward ...	336	328	8

Pathological condition and nature of operation	Total No. of cases	Cured or Relieved	Died
Brought forward ...	336	328	8
Operation on Lips, Mouths and Salivary Glands.—			
Repair of hare lips	11	11	...
Repair of cleft plate	5	5	...
Excision of law	3	2	1
Eneucleation of tonsils and removal adenoids	259	259	..
Diathermy, cancer of tongue, tonsil and cancer of nose	1	1	...
Extraction of teeth	59	59	...
Peritonsillal abscess	6	6	...
Radium introduced	3	3	...
Alveolar abscess	5	5	...
Excision ulcer of tongue ...	3	3	...
Hæmorrhage from tonsils ...	1	0	1
Excision submaxillary gland ..	1	1	...
Operations on Oesophagus.—			
Oesophagoscopy	2	2	...
Operations of Trachea.—			
Tracheotomy	4	4	...
Brochoscopy for foreign body ...	2	2	...
Operations of Noses and Sinuses.—			...
Turbinectomy	22	22	...
Submucous resection	10	10	...
Opening maxillary antrum ...	6	6	...
Nasal polypus	8	8	...
Plastic of nose	1	1	...
Nasal (not specified)	4	4	...
Frontal sinusitis	3	3	...
Cauterisation of nose	1	1	...
Ballinger-Luck operations ...	1	1	...
Operations on Eyes.—			
Removal foreign body ...	2	2	...
For pterygium	5	5	...
Plastic for entropion	2	2	...
Excision lachrymal sac ...	1	1	...
Iridectomy	10	10	...
Extraction of cataract	19	19	...
Needling of cataract	1	1	...
Evisceration of eye	4	4	...
Enucleation of eye	6	6	...
Symblepharon	2	2	...
Expression of lids for trachoma ...	5	5	...
Excision growth of eye ...	2	2	...
Incision abscess of eyelid ...	1	1	...
Plastic eyelids	2	2	...
Cauterization staphyloma ...	1	1	...
Conjunctival tumour	1	1	...
Penquecula	1	1	...
Toilet of eye	1	1	...
Hoodeleon	1	1	...
Injection lachrymal duct ...	1	1	...
Carried forward ...	825	815	10

Pathological condition and nature of operation	Total No. of cases	Cured or Relieved	Died
—	—	—	—
Brought forward ...	825	815	10
Operation on Breasts.—			
Complete amputation	4	4	...
Excision of breast	1	1	...
Operations on Thorax.—			
Resection rib for empyema ...	8	6	2
Extraction of bullet from lung ...	1	1	...
Operations of Hernia.—			
Radical cure of hernia ...	36	36	...
For strangulated hernia ...	14	13	1
Abdominal Operatins.—			
Peritoneal abscess drained ...	12	11	1
General peritonitis	2	...	2
Exploratory laparotomy ...	25	21	4
Castrectomy, partial	3	1	2
Perforated duodenal or gastric ulcer	5	5	...
Gastro-Jejunostomy	12	10	...
Splenectomy	2	2	2
Liver abscess, laparotomy and drainage	3	2	1
Cholecystostomy	4	3	1
Cholecystectomy	4	4	...
Acute intestinal obstruction ...	4	3	1
Intussusception	2	2	..
Acute and chronic appendectomy	116	112	4
Colostomy	4	4	...
Stab wound abdomen, gun-shot wound abdomen	6	5	1
Perforation intestine typhoid ...	7	6	1
Resection of intestine ...	1	1	...
Laparatomy, adhesions ...	1	1	...
Gastrostomy	1	1	...
Repair abdominal wall ...	4	4	...
Enterostomy	3	3	...
Amœbic abscess—aspiration ...	6	6	...
Pancreatitis	3	1	2
Retroperitoreal sarcoma ...	1	1	...
Operations on Rectum and Anus.—			
Excision of hæmorrhoids ...	41	40	1
Partial excision of rectum ...	4	2	2
Ischio-rectal abscess	6	6	...
Sigmoidoscopy	13	13	...
Imperforate anus	2	1	1
Dilatation of anal canal ...	6	6	...
Anal fissure	2	2	...
Fistula in ano	15	15	...
Examination under anæsthetic ...	1	1	...
Extra-peritoneal abscess opened and drained	2	2	...
Anal abscess	3	3	...
Dilation of rectal stricture ...	3	3	—
Carried forward ...	1,218	1,179	39

Pathological condition and nature of operation	Total No. of cases	Cured or Relieved	Died
Brought forward ...	1,218	1,179	39
Operations on Kidneys, Ureters and Bladders.—			
Litholapaxy	1	1	...
Suprapubic cystotomy for stone ...	7	7	...
Cystoscopy	118	118	...
Nephrectomy	2	1	1
Nephro-lithotomy	3	3	...
Peri-nephric abscess	2	2	...
Suprapubic cystotomy ...	2	2	...
Transplantation of ureters into loin	2	2	...
Operations on the Male Generative Organs.—			
Plastic of penis	2	2	...
Hydrocele, radical cure ...	20	20	...
Varicocele	4	4	...
Orchidectomy	4	4	...
Ruptured urethra	1	1	...
Suturing scrotum	1	1	...
Circumcision	18	18	...
Urethroscopy	3	3	...
Peri-urethral abscess	1	1	...
Hæmatocele	4	4	...
Replacement of testicles ...	1	1	...
Urethrotomy	3	3	...
Operations on the Female Generative Organs.—			
Ovariotomy	12	12	...
Salpingectomy	18	17	1
Laparotomy and hysteropexy ...	1	1	...
Hysterectomy	19	18	1
Perineorrhaphy	8	8	...
Amputation uterine cervix ...	7	7	...
Hymenectomy	3	3	...
Examination under anæsthetic ...	5	5	...
Vesico-vaginal fistula ...	3	3	...
Curettage	50	50	...
Ovarian cyst	6	6	...
Myomectomy	2	2	...
Trachelorraphy	3	3	...
Salpingostomy	1	1	...
Cæsarian section	7	6	1
Ventral Suspension	11	11	...
Ruptured ectopic gestation ...	6	5	1
Recto-vaginal fistula ...	1	1	...
Insertion radium, cervix ...	3	3	...
Excision papillomata, perineum ...	4	4	...
Induction of labour	1	1	...
Urethral caruncle	1	1	...
Dilatation	3	3	...
Packing cervix	1	1	...
Ovum removed	1	1	...
Injection of ether	4	4	...
Carried forward ...	1,598	1,554	44

Pathological condition and nature of operation	Total No. of cases	Cured or Relieved	Died
Brought forward ...	1,598	1,554	44
Operation on Cysts.—			
Sebaceous	2	2	...
Dental cyst	1	1	...
Dermoid	1	1	...
Not specified	4	4	...
Operation for Abscess.—			
Incision	106	105	1
Abscess hip-joint	1	1	...
Operations on Nerves.—			
Alcoholic injection for nerves ...	2	2	...
Resecting nerve	2	2	...
Operations of the Spine, Cord and Meninges.—			
Lumbar, puncture	2	2	...
Plaster case to spine	3	3	...
Operations of the Skin and Subcutaneous Tissues.—			
Skin grafting	30	30	...
Removal of nail	6	6	...
Suturing wounds	19	19	...
Curettage	3	3	...
Hæmatoma drained	1	1	...
Cellulitis incised	17	17	...
Carbuncle	2	1	...
Keloid	1	1	1
Sinuses scraped	13	13	...
Resuture of wounds	3	3	...
Excision of ulcer	3	3	...
Excision of scar	2	2	...
Plastic operations of face ...	5	5	...
Incisions	2	2	...
Tumours.—			
Unspecified	4	4	...
Lipoma	1	1	...
Naevus	1	1	...
Tumour of vulva	3	3	...
Bartholin cyst	1	1	...
Cyst (unspecified)	9	9	...
Sarcoma	3	3	...
Carcinoma removed	1	...	1
Total ...	1,852	1,805	47

7. *X-ray Department.*—

(1) Dr. Gray acted in charge of this department from the 9th August, 1929, when Dr. Webster went on leave.

(2) *Work done.*—A comparative table of the radiography undertaken during the last 5 years shows a steady increase, broken only by the departure on leave of the whole time radiologist:—

1925	3,552
1926	4,747
1927	6,118
1928	9,463
1929	8,866

(3) A large number of screen examinations were done during the year and many foreign bodies were removed in the X-ray room with the aid of the fluorescent screen.

(4) The following table shows the examinations undertaken:—

Barium meals	255	Abdomen	37
Barium enemata	21	Hip	132
Barium swallow	9	Face and jaw	86
Cholecystography	43	Thigh	86
Pyelography	16	Knee	162
Lipoidol Injections	7	Leg	189
Skull	89	Foot	120
Sinusis	171	Shoulder	121
Spine	83	Upper arm	45
Kidney and ureters	150	Forearm	161
Pelvis and bladder	47	Hand	97
Thorax	482	Joints small, elbow, etc.	351
Clavicle	12		

(5) Radiotherapy, electrical treatment and ultraviolet therapy have been used during the year in the treatment of suitable cases.

APPENDIX "E"

REPORT ON TREATMENT OF OPIUM HABIT DURING 1929

I.—SINGAPORE

Opium Habit—	
Remained on 31st December, 1928	—
Admitted during 1929	1,037
	1,037
Discharged for breaking rules	8
Unfit for treatment	—
Absconded	437
Discharged apparently cured	579
Remaining on 31st December, 1929	13
	1,037

The numbers seeking admission increased from 579 in 1928 to 1,037 in 1929.

Less than 10 per cent are really genuine cases, and it is rare to see a patient showing any of the characteristic signs and symptoms of distress.

II.—PENANG

Remained on 31st December, 1928	14
Admitted during 1929	651
	665
Unfit for treatment	—
Absconded or not cured	307
Discharged apparently cured	341
Remaining on 31st December, 1929	17
	665

III.—MALACCA

Two hundred and eighty-five patients were admitted for Opium habit treatment during the year. It is difficult to decide whether the persons really benefitted by the treatment, and have given up the opium habit after their discharge from the hospital.

APPENDIX "F"

I.—MEDICAL INSPECTION OF ENGLISH GIRLS' SCHOOLS, SINGAPORE

At the beginning of 1929, the part time post of Lady Health Officer *i/c* Schools was made a full time post, and during this year, in addition to the examination of the Government and Aided Girls Schools, six Malay Girls' Schools and eleven Boys' Schools, up to and including Standard II, were examined by her.

A routine examination was made of these school children during the first half of the year. In the 2nd half, those found defective at the first examination were re-examined. The girls requiring vaccination were vaccinated by the lady health officer, at school, whilst the boys were vaccinated by the public vaccinator.

Six thousand nine hundred and seventy-two were examined at the first examination, 5,301 were re-examined later in the year. One thousand one hundred and thirty-nine girls were vaccinated and 1,220 boys.

Thus 14,632 examinations, etc., were made during 1929.

Routine examination of locally trained female teachers was also carried out. One hundred and ninty-three teachers were examined.

The work for the year consisted of—

1. Routine examinations of the six Government and Aided Girls' Schools. Number of pupils = 3,344.
2. Routine examinations of the six Malay Girls' Schools. Number of pupils = 425.
3. Routine examinations of eleven Boys' Schools up to and including Standard II. Number of pupils = 3,203.
4. Vaccination of girls at schools.
5. Visits of inspection to these schools from time to time for the purpose of general school hygiene or for following up special cases.

6. Visits of inspection to private schools for the purpose of general school hygiene. Eleven Chinese and six English private schools were visited in 1929.
7. Hookworm examinations were carried out in one Malay School Of forty-six girls, forty-one had hookworm, forty-five had roundworm and forty-one had whipworm ova.
8. Accommodation certificates for classrooms and dormitories were issued during the year.
9. Lectures on Hygiene were given.

Some statistics of the medical examinations are given below:—

Nits	*1929*	*1928*
Govt. Girls	1%	3·7%
Malay Girls	86%	no examination

Vaccination	*1929*		*1928*	
	Requiring revaccination	*Successfully revaccinated*	*Requiring revaccination*	*Successfully revaccinated*
Govt. Girls	32·2%	62·5%	28·8%	32%
Malay Girls	88·4%	81%	—	—
Junior Boys	40·4%	74·9%	—	—

Anæmia	*1929*		*1928*	
	Incidence	*Improved*	*Incidence*	*Improved*
Govt. Girls ...	1·9%	53·1%	17·6%	—
Malay Girls ...	3·3%	21·4%	—	—
Junior Boys ...	10%	82·2%	—	—

The pupils in the Government Girls' Schools are mainly well to do children and the anæmia is found chiefly amongst the older girls. In the Malay Girls' Schools and the Boys' Schools the anæmia is due to worms. Nearly all the boys had treatment for these but as this is the first year the Malay Girls have been examined, the response to advice for treatment has not been very good.

Throat Affections	*1929*		*1928*	
	Incidence	*Improved*	*Incidence*	*Improved*
Govt. Girls ...	10·5%	53·3%	11·8%	27·6%
Malay Girls ...	18·3%	23·1%	—	—
Junior Boys ...	15·4%	34%	—	—

Enlarged tonsils constitute the chief throat affection. Many of these clear up without treatment or after the extraction of carious teeth. Therefore operative treatment is not advised except in those cases where the hypertrophy is marked and persistent over a period of 2 years. In nine cases tonsillectomy was performed during 1929.

Dental Caries		*1929*		*1928*	
		Incidence	*Improved*	*Incidence*	*Improved*
—		—	—	—	—
Govt. Girls	...	39·6%	55·4%	36·5%	21·3%
Malay Girls	...	56·2%	60·6%	—	—
Junior Boys	...	54·8%	72·8%	—	—

This condition still looms largest amongst the defects and the biggest incidence is amongst the younger children. The improvements noted are marked and are due to he energy of principals and teachers in pressing the children to receive treatment. Two schools call for special mention namely, Gan Eng Seng and Serangoon English School where it was a pleasure to re-examine the mouths.

Defective Vision		*1929*		*1928*	
		Incidence	*Improved*	*Incidence*	*Improved*
—		—	—	—	—
Govt. Girls	...	2·2%	28·7%	3·3%	29%
Malay Girls	...	—	—	—	—
Junior Boys	...	1·5%	12·2%	—	—

The girls and their parents are still adverse to wearing glasses.

Skin Affections		*1929*		*1928*	
		Incidence	*Improved*	*Incidence*	*Improved*
—		—	—	—	—
Govt. Girls	...	4·4%	53%	3·8%	—
Malay Girls	...	5·8%	40%	—	—
Junior Boys	...	13·4%	75·9%	—	—

The skin conditions are very slight, the commonest being sores due to mosquito bites. Most of these are treated in the school dispensaries.

Sanitation.—There is modern sanitation in Raffles Girls' School, the French Convent, St. Anthony's Convent, which has recently been rebuilt, in the Singapore Chinese Girls' School and in Fairfield Girls' School. These are all satisfactory. The Malay Schools have the old latrine system. The latrines were satisfactory in most of the schools.

Food.—Drinking facilities were satisfactory in most schools. In the majority of schools food is still supplied by hawkers under school supervision. Raffles girls bring their own lunch and no hawkers are allowed on the premises. Food at the French Convent is prepared on the premises, and there are no hawkers there. The food supplied by the hawkers is on the whole clean, but is too much handled by the children. The more indigestible foods are gradually being eliminated.

Medical Attention.—During the visits to the schools, principals are advised as to the best methods of obtaining treatment for their pupils. Typewritten lists of all children requiring treatment are given to the principals and dental forms and dispensary forms are given to the children to be taken to their parents. Treatment can be obtained free at the Government Dispensaries, which have now special hours for school children, or from private doctors. Dental work is carried out by two local dentists, one a Japanese, and one a Chinese, at special prices, or by private dentists.

Although the fight against home conditions and age long customs is uphill, more progress can be seen this year. The school medical work is no longer an incident, but is part of the curriculum, and is recognised as such by parents and teachers alike. The parents are becoming more interested and it is largely to the effects and co-operation of the principals and teachers that the general standard of health has been raised during 1929.

II.—MEDICAL EXAMINATION OF BOYS' SCHOOLS IN SINGAPORE

(1) *Work done.*—The following table gives the numbers of boys systematically examined in Government English, Aided, and Vernacular schools:—

	In Government and Aided Schools	*In Vernacular Schools*	*Total*
1927	5,410	1,668	7,078
1928	4,072	1,638	5,710
1929	5,859	1,920	7,779

(2) All the Government, Aided and Private Schools, numbering 39, were inspected as to their sanitary arrangements and accommodation capacity. One hundred and forty eight Chinese schools, eighteen Malay Vernacular Schools including the new Malay School at Tanjong Kling, and two Arab Schools were inspected with the same purpose.

(3) Data elicited for systematic examination of boys:—

(*a*) *General Condition.*—

	1927	*1928*	*1929*
Fat	3·46%	7·76%	4·42%
Good	79·81%	72·87%	81·90%
Fair	13·93%	15·01%	11·58%
Poor	2·80%	4·24%	2·10%

(*b*) *Cleanliness.*—The percentage of dirty children was 0·84% compared with 0·98% in 1928 and 3·19 in 1927.

(*c*) *Vaccination.*—This was done by the vaccinator attached to the Health Branch. The total vaccinated was 3,726, mostly revaccinations.

English Schools	*Malay Boys' Schools*	*Reformatory School*
2,629	1,016	81

(*d*) *Eye-sight.*—(1) Defective Vision, and (2) Diseases of the eye proper. Total number of defective vision was 463 cases, diseases of the eye 775 cases. Pupils with the defects greater than 6/9 were enabled to see the Eastern Optical Co. and to get glasses from this firm. Under the second category were (*a*) Trachoma 175, (*b*) Conjunctivitis 529, (*c*) Acute Conjunctivitis 19, (*d*) Follicular Conjunctivitis 10, (*e*) Blepharitis 4, (*f*) Squint 19,

(g) Stye 9, (h) Leucoma 10, (i) Ectropion 2, (j) Nebula 1, (k) Tumour 1, (l) Scotoma 1, (m) Corneal Opacity 1, (n) Ptosis 1. These cases were sent for treatment either to the General Hospital or to an out-door dispensary.

(e) *Dental Caries.*—The percentage of caries amongst school boys was 49·8% compared with 64·17% in 1928.

Mr. K. HOMMA and Mr. W. FONES, dentists, charged reduced fees to pupils who went to them for treatment.

(f) *Sanitation.*—The number of visits to schools was 513. Reports and recommendations were submitted to the Inspector of Schools through the Chief Health Officer.

(g) *Infectious Diseases.*—Chicken-pox 26 cases, Measles 7 cases, Diphtheria 1 case, Mumps 9 cases, Yaws 6 cases.

(4) *Medical Certificates of Room Accommodation.*—These were given when necessary for all the classes of schools and were sent to the principals of the Schools stating the number to be accommodated according to regulation 12 of the School Ordinance, 1920.

(5) Lecturers on "Health Habits" were given in 1928 to every Malay school. An examination on these in the form of a Catechism was held this year in every Malay school.

(6) *Travelling Dispensary.*—During its usual itinerary the vernacular schools en route were visited and treatment was given to the pupils free of charge.

(7) *Examination of pupils before Admission to Schools.*—One hundred and fourteen new entrants of the Anglo-Chinese School were examined by request of the principal. The new entrants of the Victoria Bridge School will be examined in January, 1930 at the request of the head master.

(8) *Systematic Examination of School-Teachers of Government, Aided and Vernacular Schools.*—The total number examined was 264.

(9) *Treatment of Diseases of School Children.*—Treatment was carried out at all the Out-door Dispensaries, and the General Hospital.

(10) *General.*—Health work amongst the Boys' Schools has progressed considerably, and we are indebted to the Inspector of Schools for close co-operation and encouragement and also to the heads of schools. A comparison of the health charts of all schools shows considerable improvement in the year now reviewed. This is the first year in which all the pupils have been examined.

TREATMENT AS CARRIED OUT SINCE LAST MEDICAL EXAMINATION

School	Vaccination	Teeth	Tonsils	Hernia and Bubonocele	Vision	Medical Cases	Surgical Cases
Anglo-Chinese School ...	926	166	13	—	—	—	—
*Gan Eng Seng School ...	61	49	4	1	8	5	2
Geylang English School ...	91	16	13	1	1	8	3
Holy Innocents	104	94	13	2	2	16	7
Rangoon Road School ...	156	135	44	1	14	84	44
*St. Andrew's School ...	205	—	—	1	—	11	—
*St. Joseph's Institution ...	458	166	24	3	39	48	3
St. Anthony's School ...	324	136	8	1	—	109	—
Serangoon English School ...	27	19	3	—	2	10	1
Telok Kurau English School ...	69	8	14	—	—	9	16
Victoria Bridge School ...	211	141	44	3	15	21	1

*These schools have not had sufficient time to carry out treatment adequately.

III.—SCHOOLS PENANG

School inspection and the examination of school children were carried out as a part time duty by: —

The Lady Medical Officer—Girls' Schools in Penang, Province Wellesley and Dindings.

The Health Officer, Province Wellesley—Boys' Schools in Province Wellesley (The assistant medical officers of the three districts carry out school inspection in many of the schools of their respective district).

In addition a Deputy rural health officer inspects all boys schools in Rural Penang and all Vernacular boys schools in Penang Town.

A Medical Officer or an assistant medical officer inspects boys schools in town other than Vernacular schools.

The deputy medical officer, Dindings, inspects all boys schools in the Dindings.

The following figures give the main points of the work done and the findings: —

—		Number of Visits	Sanitary defects	Number of Pupils examined	Enlarged Spleens	Carious teeth	Tonsils or Adenoids	Anæmia	Yaws	Require Vaccination
Girls' Schools in Northern Settlement		26	12	3,320	162 (4.9%)	2,789 (84%)	158 (4.7%)	459 (13.8%)	1	25
Boys Schools	Penang ...	141	21	15,525	1,031 (6.6%)	3,274 (21.9%)	782 (5%)	697 (4.5%)	28	141
	Province Wellesley	49	15	5,316	497 (9 3%)	1,843 (34.5%)	710 (13.3%)	304 (5.7%)	35	248
	Dindings ...	72	...	471	Figures not available				...	89

Wherever possible, sanitary defects have been remedied by the Public Works Department; the remainder are noted for action at the first opportunity.

IV.—SCHOOLS, MALACCA

Staff.—School inspections are carried out by the assistant health officers in the three districts.

Work done.—Eight Government and Government Aided Schools and 33 Vernacular Schools were inspected and pupils to the number of 2,675 boys were examined.

General Conditions.—The general condition of most pupils was good and has shown a steady improvement.

Fair	2%
Poor	6%

Definite anæmia 3%, the cause of which was under nourishment in 1% of cases, the other causes being malaria and hookworm.

Skin Conditions.—Uncleanliness was more noticeable than in previous years, and 16% of pupils showed evidence of parental neglect. 3·7% showed evidence of scabies and 7·3% had ulcers.

Defective Vision.—Forty-eight pupils showed evidence of defective vision and glasses were prescribed for where necessary. 1·7% showed signs of conjunctivitis.

Dental Caries.—This percentage 37% still remains very high and is most noticeable in the younger boys. Boys above the age of 10 usually show stronger and better teeth, possibly due to better diet and the use of "tankai kelapa" as a tooth brush. Lack of qualified dental surgeons militates against any marked improvement in this condition.

Vaccination.—Four% required re-vaccination, which was done.

Hookworm.—Fifty-nine lectures and treatment were given in schools, and 2,173 pupils were treated. There has been a marked improvement in this condition both as regards numbers infected and more especially the severity of infection.

Travelling Dispensary.—Visited 47 schools and treated 1,317 pupils of whom 747 had Yaws.

Lectures.—Were given regularly to explain the subject matter of the posters in the schools.

Enlarged spleen.—8·2% of pupils had enlarged spleens and in two instances this resulted in discovery of a malarious area.

Tonsils and Adenoids.—38% of pupils had enlarged tonsils, but only 4 could be persuaded to come for removal.

Sanitation.—All schools have pit or mounted pit latrines.

General.—The general health of schools has improved, but the dental condition still remains a problem. The intensive hookworm treatment is having a marked beneficial effect upon pupils as regards their general physical condition and more especially on their intelligence.

APPENDIX "G"

SOCIAL HYGIENE BRANCH, MEDICAL DEPARTMENT

Annual Report for the year 1929

By Dr. R. W. C. Kelly, Acting Chief Medical Officer, Social Hygiène

A.—SINGAPORE

1. *Facilities for treatment.*—

The following Government Clinics are open daily (except Sundays and holidays) for the free treatment of all nationalities in Singapore.

A. *Male Clinics*:—
  (1) Bencoolen Street V. D. Clinic.
  (2) North Canal Road V. D. Clinic.
  (3) Tanjong Pagar V. D. Clinic.
  (4) General Hospital V. D. Clinic
  (5) Kandang Kerbau Outdoor Dispensary.
  (6) Joo Chiat Road Outdoor Dispensary.
  (7) Bukit Timah Road Outdoor Dispensary.
  (8) Paya Lebar Outdoor Dispensary.

B. *Female Clinics*:—
  (1) Kandang Kerbau Women's Outdoor Dispensary.
  (2) North Canal Road V. D. Clinic.

C. *Hospitals*:—(In patients).
  (1) General Hospital (Males and Females).
  (2) Tan Tock Seng Hospital (Males and Females).

Bencoolen Street Clinic:—This clinic is under the charge of an Assistant Medical Officer with a staff of four dressers. It is situated at the southern end of the town in close proximity to a densely populated Chinese district, and is very popular with all classes of the community. The evening session which was primarily devised for the educated classes is much appreciated.

	1928	*1929*
Average monthly rate, new cases ...	401·3	581·4
Average monthly rate, attendances ...	3,009·11	4,182·3
Total average rate ...	3,410·14	4,763·7

North Canal Road V. D. Clinic.—

This is one of the two original clinics started by Government to treat sufferers from V. D. and is situated in the centre of the town, close to a densely populated area and within easy reach of the business centre. An Assistant Medical Officer with a staff of two dressers is in charge.

	1928	*1929*
Average monthly rate, new cases ...	332·3	478·10
Average monthly rate, attendances ...	2,713·6	3,685·5
Total average rate ...	3,045·9	4,163·16

Tanjong Pagar V. D. Clinic.—

Tanjong Pagar V. D. Clinic is situated within the dock area in a building of the Singapore Harbour Board and is intended primarily for the treatment of seamen of all nationalities. It is under the charge of an Assistant Medical Officer with two dressers.

	1928	*1929*
Average monthly rate, new cases ...	270·1	247·0
Average monthly rate, attendances ...	2,670·9	2,245·7
Total average rate ...	2,940·10	2,492·7

The General Hospital Clinic, situated in the third class admission block, caters for both out-patients and hospital in-patients. This clinic is in charge of the Medical Officer, Social Hygiene, who is assisted by a European attendant and one dresser.

	1928	*1929*
Average monthly rate, new cases ...	141·4	163·10
Average monthly rate, attendances ...	2,013·1	2,893·7
Total average rate ...	2,154·5	3,056·17

Out-door Dispensaries.—

All Government out-door dispensaries also treat cases of V. D. Three of these dispensaries being situated in outlying areas are of great use to sufferers who would otherwise have to journey long distances into the city.

	1928	*1929*
Paya Lebar Out-door Dispensary.—		
Average monthly new cases ...	20·7	18·5
Average monthly attendances ...	69·11	90·11
Total average ...	89·18	198·16

	1928	*1929*
Bukit Timah Out-door Dispensary.—		
Average monthly new cases ...	36·3	38·7
Average monthly attendances ...	64·2	75·7
Total average ...	100·5	114·14
Joo Chiat Road Out-door Dispensary.—		
Average monthly new cases ...	66·5	68·6
Average monthly attendances ...	184·9	242·4
Total average ...	250·14	310·8
Kandang Kerbau Out-door Dispensary.—		
Average monthly new cases ...	36·4	60·4
Average monthly attendances ...	70·10	136·0
Total average ...	106·14	196·4

B. *Female Clinics.—*

These are under the charge of a Lady Assistant Medical Officer.

	1928	*1929*
Average monthly new cases ...	144·1	215·6
Average monthly attendances ...	706·10	1,098·7
Total average ...	850·11	1,313·13

Hospitals.—

The returns for inpatients are not shown separately but included in returns for the Hospitals.

Treatment of seamen.—

The clinic situated at the docks at Tanjong Pagar caters for men of the mercantile marine and conforms to the international agreement by treating seamen of all nationalities free and providing them with therapeutic agents to carry them through to the next port of call.

Number of seamen treated.—

	1928	*1929*
New cases	995	788
Re-attendances	6,092	4,278
Total attendances ...	7,087	5,066

Nationalities of seamen treated.—

British	250	194
Other Europeans	28	25
Chinese	622	341
Malays	17	13
Indians	61	63
Others	17	5
Total ...	995	641

Number of new cases at all the Clinics.

	1927	1928	1929
New cases.—			
Males	12,840	15,624	19,882
Females	1,266	1,729	2,586
	14,106	17,353	22,468
Re-attendances.—			
Males	87,857	129,563	162,510
Females	6,124	8,482	13,183
Total ...	108,087	155,398	198,161

Ratio of total attendances to new cases.—

The ratio of attendances to new cases shows a steady increase. This is an encouraging sign as it proves that the standard of work at the clinics is good, and that the patients are coming to realise the benefit of continuing treatment beyond the stage of disappearance of symptoms.

	1927	1928	1929
Ratio of new cases to total attendances	7·66	8·90	8·98

Treatment by private practitioners.—

There are at present 11 private practitioners on our list who are supplied by Government with drugs and who have agreed to treat poor patients at a reduced fee.

Number of patients treated by general practitioners during the year are:—

	Syphilis	*Gonorrhœa*	*Total*
New cases	1,760	775	2,535
Re-attendances ...	1,782	733	2,515
Total ...	3,542	1,508	5,050

Ablution Centre, Bencoolen Street Clinic.—

The following are the attendances at the ablution centre:—

	1928	1929
Europeans	49	119
Chinese	138	338
Malays	21	57
Tamils	106	357
Others	140	478
Total ...	454	1,349

Blood Examinations.—

The Professor of Bacteriology has examined, by the Kahn test, specimens of blood sent from all the clinics, with the following results:—

No. of blood tests	*Positive*	*Negative*
7,011	3,279	3,732

Analysis of work done in V. D. Clinics.—

(*a*) *Intravenous—*

1.	Arsenobenzol	19,094
2.	Mercurosol	98
3.	Collosol Iodine	1,597
4.	Thiostab	93
5.	Silbersalvarsan	48
6.	Sulfoxylsalvarsan	173
7.	Neosilbersalvarsan	104

(*b*) *Intramuscular.—*

1.	Bismuth	18,427
2.	Bicroel	36
3.	Contramine	402
4.	Trimine	566
5.	Gonoyatren	586
6.	Arthigon	208
7.	Collosol Manganese	334
8.	Manganese Butyrate	596
9.	Bistoval	22

(*c*) *Hypodermic.—*

1.	Vaccine gonorrhœal	6,795
2.	Sulphostab	5,557
3.	Sulfarsenol	240
4.	Gonococcus Immunogen	158

Instrumentations.—

1.	Irrigations	61,429
2.	Dressings	104,323
3.	Prostatic massage	3,131
4.	Minor Operations	1,071
5.	Dilatation	694

Microscopical Examinations.—

Gonococci	3,327	
Others	1,391	
		4,718

Propaganda.—

The Office continues to distribute pamphlets and leaflets free to the public. Applications from outstations for these were promptly attended to.

The bill poster posts large posters in the Chinese, Malay and Tamil languages daily throughout the streets. These posters explain the dangers of V.D., and the location of the clinics, and call the attention of the public to the facilities offered by Government of free and confidential treatment.

Chinema films.—

A cinema film entitled "Fit to Win" was rented from Shanghai and shown with great success to the following Associations:—

1.	Chinese Industrial and Continuation School, shown on two occasions ...	800 persons attended
2.	Nanyang Students' Association ...	550 persons attended
3.	Chinese Association	
4.	Straits Chinese British Association ...	1,500 persons attended and shown on two occasions.
5.	Straits Chinese Recreation Club ...	
6.	Chinese Christian Association ...	
7.	Eurasian Community	150 persons attended
8.	Indian Association	40 persons attended
9.	India-Ceylon Club	
10.	Ceylon Tamil Association	
11.	Young Men Hindu Literary Union ...	
12.	Malayalee Association	
13.	Moslem Association	
14.	Police Force, shown on two occasions ...	360 members of the Force attended.

It was lent to the Military Authorities to be demonstrated to the troops in garrison on two occasions.

I undertook and completed a local cinema film entitled "Success or Failure". It was demonstrated to the members of the Social Hygiene Advisory Board and they considered it fit to be shown to the public. The characters are now being translated into the Chinese, Tamil and Malay languages and it is hoped that the film will be released to the public at an early date.

Lantern lectures.—

Lantern lectures were delivered during the year to the following:—

Ceylon Association	150	persons	attended
Cantonese fitters Guild	150	,,	,,
Chinese Engineers' Guild	450	,,	,,
Harbour Board Employees (clerks etc.) ...	40	,,	,,
St. Joseph's Old Boys' Association ...	120	,,	,,

Schools.—

The Chief Medical Officer, Social Hygiene, lectured to the boys of the following Schools:—

Raffles Institution	60	boys	attended
St. Joseph's Institution	20	,,	,,
Anglo Chinese School	100	,,	,,
St. Andrews' Mission School	120	,,	,,
Malay Seminary	160	,,	,,

Police Force.—

A lecture to the Police Force at the Central Police Station was delivered by Dr. Tan Eng Han in Malay—About 150 members of the Force attended the lecture.

Tamil employees.—

A lecture in Tamil was delivered to the Singapore Harbour Board employees by Dr. V. K. Thambypillai and about 200 Tamil employees attended.

Prostitute Community.—

Owing to the closing of all brothels in Singapore it is difficult to gather prostitutes together for lantern lectures and the scheme of lecturing to these girls was abandoned early in the year.

Chinese lady visitor to brothels.—

On the resignation of the first lady visitor to brothels, a new lady visitor was appointed in her place on the 11th April, 1929. The new lady visitor was told to extend her activities among the "sly" prostitutes as well. She tries to distribute pamphlets and leaflets to these girls.

General.—

Two meetings of the Social Hygiene Advisory Board were held during the year.

B.—PENANG

The following Government Clinics are open daily (except Sundays and holidays) for the free treatment of all nationalities in Penang:—

1. *Kampong Kolam Clinic*—

Monthly average rate new cases	368·9
Monthly average rate attendances	1,655·3
Total average ...	2,023·12

2. *General Hospital Clinic*—

Monthly average new cases	33·11
Monthly average attendances	106·11
Total average ...	139·22

3. *Chowrasta Outdoor Dispensary*—

Monthly average new cases	135·11
Monthly average attendances	95·10
Total average ...	230·21

4. *Balik Pulau Outdoor Dispensary*—

Monthly average new cases	4·11
Monthly average attendances	4·0
Total average ...	8·11

5. *Travelling Dispensary*—

Monthly average new cases	37·6
Monthly average attendances	30·7
Total average ...	67·13

6. *Butterworth and Penaga Outdoor Dispensary*—

Monthly average new cases	37·7
Monthly average attendances	37·3
Total average ...	74·10

7. *Sungei Bakap Outdoor Dispensary*—

Monthly average new cases	52·6
Monthly average attendances	78·9
Total average ...	130·15

8. *Seamen's Ward*—

Monthly average new cases	11·8
Monthly average attendances	3·11
Total average ...	14·19

9. *Bukit Mertajam Outdoor Dispensary*—

Monthly average new cases	46·11
Monthly average attendances	46·11
Total average ...	92·22

10. *Women and Children Outdoor Dispensary*:—

Monthly average new cases	19·11
Monthly average attendances	15·01
Total average ...	70·12

Total number of new cases and attendances of all the clinics:—

	1928	*1929*
New cases	4,288	9,005
Re-attendances	26,994	25,326
Total attendances ...	31,282	34,331

Analysis of work done:—

1.	Arsenobenzol	8,023
2.	Bismuth	1,963
3.	Sulfarsenol	946
4.	Vaccine	246
5.	Collosol Iodine	117
6.	Acriflavine	263
7.	Irrigations	3,286
8.	Prostatic message	313
9.	Dressings	17,527
10.	Wassermann Tests	1,354
11.	Microscopical Examinations	1,190

Propaganda.—

The Chief Medical Officer, Social Hygiene, paid an inspection tour in August, 1929, and arranged with the Chief Medical Officer, Penang, for a series of lantern lectures and cinema films to be shown to the public of Penang from time to time, and, generally, to introduce this work on similar lines to that of Singapore.

C.—MALACCA

The following Government Clinics are open daily (except Sundays and and holidays) for the free treatment of all nationalities:—

1. *Durian Daun Hospital*—

Average monthly new cases	35·15
Average monthly attendances	14·10
Total average	49·25

2. *Travelling Dispensary*—

Average monthly new cases	10·8
Average monthly attendances	4·1
Total average	14·9

3. *V. D. Clinic*—

Average monthly new cases	93·1
Average monthly attendances	229·3
Total average	322·4

4. *Government Outdoor Dispensary (Central Division)*—

Average monthly new cases	17·3
Average monthly attendances	8·1
Total average	25·4

5. *Government Outdoor Dispensary, Jasin*—

Average monthly new cases	43·4
Average monthly attendances	16·0
Total average	59·4

6. *Government Outdoor Dispensary, Alor Gajah*—

Average monthly new cases	24·4
Average monthly attendances	15·10
Total average	39·14

Total of number of new cases and attendances at all the Clinics:—

	1928	*1929*
New cases	1,430	2,699
Re-attendances	1,826	3,457
Total attendances	3,256	6,156

Analysis of work done:—

1.	Arsenobenzol	3,135
2.	Bismuth	1,680
3.	Mercurochrome	220
4.	Sulphostab	9
5.	Vaccine	238
6.	Acriflavine	162
7.	Sulfarsenol	72
8.	Irrigations	1,024
9.	Prostatic message	25
10.	Dressings	1,078
11.	Wassermann Tests	24
12.	Microscopical Examinations	3

TABLE I.

STAFF

1. The authorised number of the European staff of the Medical Department of Straits Settlements in 1929, including officers to be seconded for service in the Unfederated Malay States, was 179.

GENERAL

Principal Civil Medical Officer, Straits Settlements.
Accountant, Medical Department, Straits Settlements.

HOSPITALS AND DISPENSARIES

Chief Medical Officer, Singapore.
Secretary, General Hospital, Singapore.
Chief Medical Officer, Penang.
Chief Medical Officer, Malacca.
Senior Surgeon, Singapore.
One Radiologist, Singapore.
Surgeon, Penang.
Thirteen Medical Officers, Singapore.
Six Medical Officers, Penang.
One Dispensing Chemist, Singapore.
One Medical Officer, Labuan.
One Matron, Super-scale, General Hospital, Singapore.
One Matron, Grade I, Penang.
Five Matrons, Grade II, Singapore.
Two Matrons, Grade II, Penang.
One Matron, Grade II, Malacca.
Forty-three Sisters, Singapore.
Fourteen Sisters, Penang.
One Sister, Malacca.
Two European Attendants, Singapore.
One European Steward, Singapore.
One Lay Superintendent, Leper Settlement, Pulau Jerejak

HEALTH BRANCH

Chief Health Officer, Singapore.
Senior Health Officer, Penang.
Six Health Officers, Singapore.
One Health Officer, Malacca.
Two Chief Sanitary Inspectors.
One Lay Superintendent, Quarantine Station, Singapore.
Three Public Health Sisters.
One Sister, Quarantine Station, Singapore.
One Lay Superintendent, Quarantine Station, Penang.

PATHOLOGICAL BRANCH

One Pathologist, Singapore.

One Pathologist, Penang.

One Bacteriologist, Singapore.

COLLEGE OF MEDICINE, SINGAPORE

Principal.

Professor of Physiology.

Professor of Anatomy.

Professor of Medicine.

Professor of Surgery.

Professor of Clinical Surgery.

Professor of Midwifery and Gynæcology.

Professor of Bacteriology.

Professor of Biology.

Professor of Bio-chemistry.

Professor of Dental Surgery.

Dental Mechanic.

Janitor.

MENTAL HOSPITAL, SINGAPORE

Medical Superintendent.

Assistant Medical Superintendent.

One Matron, Grade I.

One Sister.

Four European Attendants.

SOCIAL HYGIENE BRANCH

Chief Medical Officer, Singapore.

One Medical Officer, Singapore.

2. In addition, 16 supernumerary Medical and Health Officers and 18 Nursing Sisters are borne on the establishment for service in the Unfederated Malay States, making a total of 179.

3. The local qualified medical staff (Specialists, Deputy Medical Officers, Deputy Health Officers, Assistant Medical Officers, Assistant Health Officers etc.) number 73.

TABLE *II*

FINANCIAL

1929

Revenue

	$ c.	$ c.
Singapore—		
Hospitals Board	336,786 27	
Medical General	6,053 00	
Health	33,032 90	
		375,872 17
Penang—		
Hospitals Board	100,239 79	
Payment for Lepers	86,401 65	
Medical General	28,278 90	
Health		
		214,920 34
Malacca—		
Hospitals Board	21,086 64	
Medical General	2,411 50	
Health		
		23,498 14
Labuan—	925 42	
		925 42
	Total ...	$615,216 07

1. The revenue collected in the Medical Department is classified under three headings, *viz*:—

(*a*) Hospitals Board (Hospitals and Dispensaries).

(*b*) Medical General which includes Medical, Pathological Branch, College of Medicine, Singapore, and Mental Hospital. It will be seen that the Analyst Department has been omitted as it is now a separate department.

(*c*) Health Branch.

2. The income from "Hospitals and Dispensaries" and Mental Hospital, Singapore, is paid into the account of the Hospitals Board, which is administered by a Special Committee. In addition to the amounts paid into the Hospitals Board Account as shown above the Board received contributions from Government for the various settlements as follows:—

	$
Singapore	606,200
Penang	356,800
Malacca	107,050
Labuan	3,460
Total ...	$1,073,510

3. No income is derived from the Pathological Branch.

4. Fees collected under Medical General and Health Branch are paid into the Treasury as General Government Revenue.

5. Fees collected under College of Medicine, Singapore, are paid into the College Fund.

1929

EXPENDITURE

	$	c.	$	c.
Singapore—				
Hospitals Board			816,090	17
Medical General (including Pathological Branch)—				
Personal Emoluments	39,624	07		
Other Charges	18,146	91		
College of Medicine—				
Personal Emoluments	174,364	01		
Other Charges	42,567	14		
Health Branch—				
Personal Emoluments	167,439	16		
Other Charges	145,549	91		
Hospitals and Dispensaries (including General Hospital, Tan Tock Seng Hospital, Mental Hospital, Maternity Hospitals and all Out-door Dispensaries)—				
Personal Emoluments	692,978	09		
Other Charges	5,128	44		
Social Hygiene Branch—				
Personal Emoluments	38,908	55		
Other Charges	22,613	81		
Medical Proper, General Clerical Service—				
Personal Emoluments	33,307	07		
Health Branch, Personal Emoluments	6,729	04		
Social Hygiene Personal Emoluments	2,600	00		
			1,389,956	20
	Total ...		$2,206,046	37

	$	c.	$	c.
Penang—				
Hospitals Board			499,384	86
Medical General (including Pathological Branch)—				
Personal Emoluments	24,222	72		
Other Charges	4,555	99		
Health Branch—				
Personal Emoluments	84,179	68		
Other Charges	137,860	61		
Social Hygiene Branch—				
Personal Emoluments	6,755	00		
Other Charges	8,053	49		
Hospitals and Dispensaries—				
Personal Emoluments	309,932	35		
Federated Malay States Agency ...	1,886	94		
General Clerical Service—				
Personal Emoluments	17,147	03		
			594,593	81
	Total ...		$1,093,978	67

Malacca—

	$	c.	$	c.
Hospitals Board			105,381	79
Medical General (including Pathological Branch)—				
Personal Emoluments	14,285	70		
Other Charges	3,792	22		
Health Branch—				
Personal Emoluments	19,410	87		
Other Charges	46,830	65		
Social Hygiene Branch—				
Personal Emoluments	1,864	60		
Other Charges	3,519	57		
Hospitals and Dispensaries—				
Personal Emoluments	90,841	63		
Medical Proper, General Clerical Service—				
Personal Emoluments	8,553	50		
Health Branch—				
Personal Emoluments	2,112	00		
			191,210	74
Total			$296,592	53

Labuan—

	$	c.	$	c.
Labuan	24,075	17		
			$24,075	17

SUMMARY

	$	c.
Singapore	2,206,046	37
Penang	1,093,978	67
Malacca	296,592	53
Labuan	24,075	17
Grand Total	$3,620,692	74

The Other Charges of the Hospitals and Dispensaries are shown under the Hospitals Board Expenditure.

1. The total expenditure of the Medical Department for the Straits Settlements for the year 1929 amounted to $3,671,402.49.

2. Half of the amounts shewn under the head College of Medicine were refunded by the Federated Malay States Government.

TABLE III *A*

ESTIMATED POPULATION, WITH BIRTH AND DEATH-RATES FOR THE YEARS 1928 AND 1929

	POPULATION		BIRTHS		DEATHS		BIRTH-RATIO PER MILLE		DEATH-RATIO PER MILLE	
	Estimated 1928	Estimated 1929	1928	1929	1928	1929	1928	1929	1928	1929
Singapore	553,366	574,665	19,332	20.902	15.404	14,851	34.94	36.37	27.84	25.84
Penang	186,171	191,330	6,874	7.346	6,225	5,490	36.92	38.39	33.44	28.69
Province Wellesley	138,230	141,541	4,747	5.515	4,247	3,630	34.34	38.96	30.72	25.65
Dindings	17,622	18,334	573	597	429	502	32.51	32.56	24.34	27.38
Malacca	194,342	200,004	7,673	7,464	5.005	4,904	39.48	37.32	25.75	24.52
Labuan	5,904	6,029	280	278	206	167	47.49	46.11	34.38	27.69
Total ...	1,095.635	1,131,903	39,479	42,102	31,516	29,544	36.03	37.20	28.76	26.10

TABLE III *B*

QUARTERLY DEATH-RATES FOR VARIOUS PARTS OF THE COLONY DURING THE PAST 3 YEARS WERE:—

YEAR	1927				1928				1929			
Quarter	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th
Singapore ...	28.42	34.07	35.67	32.39	25.05	29.49	29.10	27.99	24.38	26.83	26.13	26.09
Penang Island ...	33.72	37.78	36.19	36.34	32.58	38.67	31.80	30.69	29.38	31.07	26.08	28.28
Province Wellesley	29.91	31.99	32.79	32.72	27.87	31.16	30.02	27.89	25.04	27.89	24.25	25.42
Dindings ...	27.53	28.20	38.43	39.27	21.23	25.11	27.31	23.70	26.99	22.31	24.89	35.27
Malacca ...	35.06	36.16	35.40	32.81	23.81	25.97	25.28	27.95	24.94	24.36	22.68	26.10

TABLE III *C*

POPULATION, ESTIMATED RACIALLY AND COLLECTIVELY OF THE STRAITS SETTLEMENTS FOR THE YEARS 1929, 1928 AND 1927

Settlement or Province	Europeans 1929	Eurasians 1929	Chinese 1929	Malays 1929	Indians 1929	Other Nationalities 1929	TOTAL		
							1929	1928	1927
Singapore	10,679	7,010	437,240	67,117	43,644	8,975	574,665	553,366	532,296
Penang	1,640	1,808	120,466	38,952	26,444	2,020	191,330	186,171	181,104
Province Wellesley	549	414	36,089	70,234	33,776	479	141,541	138,230	135,028
Dindings	34	34	4,325	5,746	8,173	22	18,334	17,622	16,931
Malacca	749	2,169	57,414	95,235	44,165	272	200,004	194,342	188,828
Labuan	29	16	1,629	4,198	107	50	6,029	5,904	5,781
Total ...	13,680	11,451	657,163	281,482	156,309	11,818	1,131,903	1,095,635	1,059,968

TABLE III *D*

BIRTHS REGISTERED IN THE STRAITS SETTLEMENTS DURING 1929 AND THEIR RATIO PER MILLE OF POPULATION

Settlement or Province	Male	Female	Total 1929	Total 1928	Total 1927	RATIO PER MILLE		
						1929	1928	1927
Singapore	11,053	9,849	20,902	19,332	17,464	36.37	34.94	32.81
Penang	3,745	3,601	7,346	6,874	6,860	38.39	36.92	37.88
Province Wellesley	2,818	2,697	5,515	4,747	4,734	38.96	34.34	35.06
Dindings	304	293	597	573	508	32.56	32.51	30.00
Malacca	3,918	3,546	7,464	7,673	7,403	37.32	39.48	39.20
Labuan	144	134	278	280	264	46.11	47.49	44.02
	21,982	20,120	42,102	39,479	37,233	37.20	36.03	35.13

TABLE III *E*

Births registered in the Straits Settlements during 1929 according to Nationalities

Settlement or Province	Europeans		Eurasians		Chinese		Malays		Indians		Japanese		Other Nationalities		Total	
	No.	Ratio	No.	Ratio	No.	Ratio	No.	Ratio	No.	Ratio	No.	Ratio	No.	Ratio	No.	Ratio
Singapore	142	13.30	211	30.10	16,542	37.83	2,856	42.55	1,000	22.91	99	26.75	52	5.91	20,902	36.37
Penang	53	32.32	44	24.34	4,851	40.27	1,544	39.64	816	30.86	...	...	38	18.81	7,346	38.39
Province Wellesley ...	1	1.82	8	19.32	1,883	52.18	2,643	37.63	965	28.57	...	...	15	31.27	5,515	38.96
Dindings	...	...	1	29.71	200	46.24	234	40.72	162	19.82	...	...	...	...	597	32.56
Malacca	10	13.35	72	33.20	2,599	45.27	4,087	42.91	689	15.60	2	21.05	5	27.56	7,464	37.32
Labuan	...	...	...		112	68.00	159	38.03	3	25.09	...	...	4	86.96	278	46.11
Total .	206	15.06	336	29.34	26,187	39.85	11,523	40.94	3,635	23.26	101	25.12	114	9.65	42,102	37.20

TABLE III *F*

Deaths registered in the Straits Settlements during 1929 according to Nationalities

Settlement or Province	Europeans		Eurasians		Chinese		Malays		Indians		Other Nationalities and Unknown		Total	
	No.	Ratio per mille	No.	Ratio per mille	No.	Ratio per mille	No.	Ratio per mille	No.	Ratio per mille	No.	Ratio per mille	No.	Ratio per mille
Singapore	55	5.15	106	15.12	11,745	26.86	1,853	27.61	937	21.47	155	17.27	14,851	25.84
Penang	13	7.93	29	16.04	3,319	27.55	1,140	29.27	946	35.77	43	21.28	5,490	28.69
Province Wellesley	1	1.82	1	2.41	1,121	31.06	1,664	23.69	803	23.77	40	83.51	3,630	25.65
Dindings	...	...	1	29.41	164	37.92	161	28.02	173	21.17	3	136.36	502	27.38
Malacca	1	1.34	39	17.98	1,626	28.32	2,626	27.56	607	13.74	5	18.38	4,904	24.52
Labuan	...	...	1	66.66	42	25.50	120	28.71	2	17.24	2	43.48	167	27.69
Total ...	70	5.12	177	15.46	18,017	27.42	7,564	26.87	3,468	22.19	248	20.98	29,544	26.10

TABLE III *G*

Deaths registered in the Straits Settlements in 1929 under different groups of Ages

Ages	Singapore	Penang	Province Wellesley	Dindings	Malacca	Labuan	Total
Under 3 months	2,174	649	441	74	1,161	40	4,539
3 months and under 1 year ...	1,890	531	193	35	684	22	3,355
1 year to 5 years	1,430	588	547	81	407	15	3,068
5 years to 10 ,, ...	381	184	164	21	145	4	899
10 ,, 20 ,, ...	508	244	220	38	202	9	1,221
20 ,, 25 ,, ...	792	297	197	28	207	2	1,523
25 ,, 35 ,, ...	2,060	658	429	57	530	15	3,749
35 ,, 45 ,, ...	2,010	712	372	74	547	9	3,724
45 ,, 55 ,, ...	1,594	625	293	41	370	12	2,935
55 ,, 75 ,, ...	1,642	775	543	35	491	29	3,515
75 years and above	334	186	220	18	155	10	923
Unknown	36	41	11	...	5	...	93
Total ...	14,851	5,490	3,630	502	4,904	167	29,544

TABLE III *H*

Table showing the Infantile Mortality (under one year) in the Straits Settlements including children born elsewhere

Settlement	Births	Deaths	Ratio per mille of Births		
			1929	1928	1927
Singapore	20,902	4,112	196.73	204.32	232.99
Penang	7,346	1,180	160.63	173.41	179.88
Province Wellesley	5,515	634	114.96	133.35	154.63
Dindings	597	108	180.90	160.56	181.10
Malacca	7,464	1,845	247.19	222.34	291.64
Labuan	278	62	223.02	260.71	212.12
Total ...	42,102	7,941	188.61	193.69	224.04

TABLE III *I*

Tables showing the Infantile Mortality (children under one year) in the Straits Settlements and Nationalities, Excluding Children born elsewhere

Nationalities	Singapore			Penang			Province Wellesley			Dindings			Malacca			Labuan			Total		
	Deaths	No. born elsewhere	Ratio	Deaths	No. born elsewhere	Ratio	Deaths	No. born elsewhere	Ratio	Deaths	No. born elsewhere	Ratio	Deaths	No. born elsewhere	Ratio	Deaths	No. born elsewhere	Ratio	Deaths	No. born elsewhere	Ratio
Europeans	6	...	42.25	...	...	...	...		...	...	...	...	...	...	...	...	...	...	6	...	29.12
Eurasians	31	...	146.92	3	...	68 18	...	...	...	...	...	...	11	1	152.78	...	...	...	45	1	133 93
Chinese	2,932	137	177.25	707	53	145.75	192	4	101 96	25	...	125.00	485	7	186.84	14	...	125.00	4,355	201	166.30
Malays	756	36	264.70	257	15	166 45	289	4	109.34	34	2	145.30	1,244	8	304 38	47	...	295 60	2,627	65	227.98
Northern Indians	25	1	160 00	121	9	155 64	126	7	139.57	43	1	265.43	3	1	81.03	1	...	333,33	561	23	154.33
Southern Indians	135	4		6	...		...	...	...	...	...	...	101	...	154.91	...	...				
Japanese	10	...	109.09	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10	...	99 00
Other Nationalities and Unknown ...	39	...	75.00	9	...	236 84	4	3	266.66	2	1	...	1	...	14.28	...	...	...	55	4	482.45
Total ...	3,934	178	188.21	1,103	77	150 15	611	18	111.70	104	4	174.21	1,845	17	247.19	62	...	223.02	7,659	294	181.92

TABLE III *J*

Deaths registered in the Straits Settlements as regards certificates in the year 1929.

Particulars	Singapore	Penang	Province Wellesley	Dindings	Malacca	Labuan	Total
Died in Hospitals	3,038	1,073	488	126	298	14	5,037
Certified by Outside Medical Practitioners	4,923	751	1	...	289	8	5,972
Certified by Registering Officers after death	4,016	2,403	8	...	458	21	6,906
Uncertified	2,874	1,263	3,133	376	3,859	124	11,629
Total ...	14,851	5,490	3,630	502	4,904	167	29,544

TABLE IV

Meteorological Returns for the Straits Settlements for the year 1929 and also two graphs showing the wettest and driest years since 1869, and the annual rainfall in inches and millimetres since 1862.

METEOROLOGICAL RETURN FOR THE YEAR 1929

Singapore

—	Temperature						Rainfall		Winds		Remarks
	Solar Maximum	Minimum on Grass	Shade Maximum	Shade Minimum	Range	Mean	Amount in m. m.	Degree of Humidity	General Direction	Average Force	
January ...	143	70.5	86.7	72.5	14.2	78.2	62.57	78	N.E.	2.5	
February ...	139	69.9	86.6	73.0	13.6	78.4	148.58	82	N.E.	2.2	
March ...	140	70.2	87.1	73.5	13.6	79.0	275.40	81	N. E.	2.1	
April ...	152	71.4	88.7	74.6	14.1	80.4	129.75	80	N.W.	1.5	
May ...	148.7	71.8	87.7	75.4	12.3	80.4	159.51	82	S.W.	1.3	
June ...	135	70.8	87.2	74.7	12.5	79.8	182.22	82	S.E.	1.2	
July ...	147	71.3	88.7	76.5	12.2	81.4	26.61	77	S.E.	2.0	
August ...	144.2	71.7	88.7	75.1	13.6	80.7	234.84	79	S.E.	1.9	
September ...	138.7	71.6	87.6	75.0	12.6	80.7	171.62	81	S.E.	1.4	
October ...	144.4	70.6	87.2	74.4	12.8	79.6	186.44	82	S.W.	1.3	
November ...	133.2	70.3	86.0	73.8	12.2	78.8	265.29	84	N. E.	1.1	
December ...	137	70.6	86.2	73.1	13.1	78.5	166.44	84	N.E.	1.6	
Mean ...	141.8	70.9	87.4	74.3	13.1	79.7	2.009.27	81	...	1.6	

METEOROLOGICAL RETURN FOR THE YEAR 1929

Penang

—	Temperature						Rainfall		Winds		Remarks
	Solar Maximum	Minimum on Grass	Shade Maximum	Shade Minimum	Range	Mean	Amount in m.m.	Degree of Humidity	General Direction	Average Force	
January ...	165	69	94	70	24	82	17	78.3	N.W.	...	
February ...	163	68	95	69	26	81.5	181	78.5	N.W.	...	
March ...	165	68	94	68	26	81.7	191	75.2	N.W.	...	
April ...	165	67	95	70	15	82.2	222	78.3	S.	...	
May ...	161	69	95	67	28	82.9	204	77.05	S.	...	
June ...	162	68	94	70	16	82.32	117	60.76	S.	...	
July ...	161	68	93	78	15	82.87	33	75.99	S.	...	
August ...	160	68	102	70	32	107.62	182	78.56	S.	...	
September ...	160	68	98	76	18	85.95	466	81.09	E.	...	
October ...	160	68	93	70	23	80.52	174	83.17	E.	...	
November ...	162	68	92	71	21	63.88	261	83.74	E.	...	
December ...	162	68	95	70	25	82.41	51	84.43	N.	...	
Mean ...	161.4	68	96.5	70	27.6	81.4	2,399	80.8	...	...	

METEOROLOGICAL RETURN FOR THE YEAR 1928

Malacca

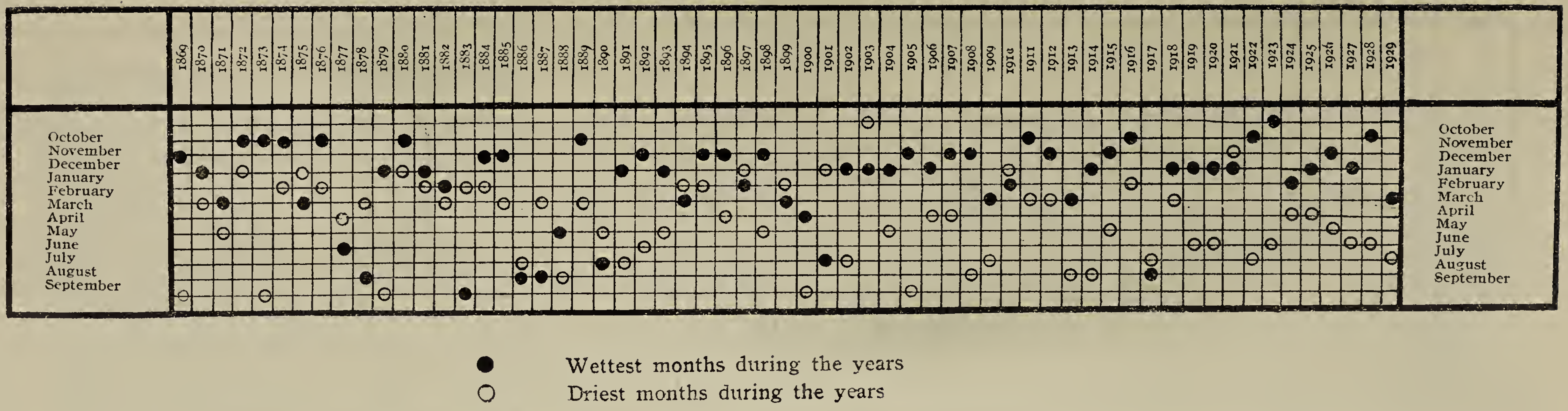
—	TEMPERATURE						RAINFALL		WINDS		REMARKS
	Scolar Maximum	Minimum on Grass	Shade Maximum	Shade Minimum	Range	Mean	Amount in m.m.	Degree of Humidity	General Direction	Average Force.	
January	121	...	90	73	17	79	118.6	85	N.E.	...	
February	124	...	90	74	16	78	59·8	87	N.E.	...	
March	124	...	90	74	16	80	170.4	86	N.E.	...	
April	118	...	90	74	16	80	219.8	87	N.E.	...	
May	122	...	90	74	16	80	276.0	86	N.E.	...	
June	116	...	89	74	15	79	224 6	87	N. E.	...	
July	125	...	91	74	17	79	161.8	85	N.E.	...	
August	126	...	90	74	16	79	111.2	85	N.E˙	...	
September ...	113	...	89	73	16	79	289·2	86	N.E˙	...	
October	108	...	89	73	16	79	179.0	86	N.E.	...	
November ...	108	...	88	73	15	79	299·4	86	N. E.	...	
December	121	...	90	74	16	79	121.2	85	N.E.	...	
Mean ...	118	...	89	73	16	79	2,231	85	...	...	

METEOROLOGICAL RETURN FOR THE YEAR 1928

Labuan

—	TEMPERATURE						RAINFALL		WINDS		REMARKS
	Solar Maximum	Minimum on Grass	Shade Maximum	Shade Minimum	Range	Mean	Amount in m.m.	Degree of Humidity	General Direction	Average Force	
January ...	155	...	92	74	...	...	368·3	...	N. E. N. E. & S. W.	2	
February ...	148	...	90	74	...	...	127.0	...	N. W.	2	
March ...	155	...	90	74	...	...	...	...	N. W. & N. E.	2	
April ...	155	...	93	73	...	...	251.46	...	N.W.N.E.S.W.	2	
May ...	154	...	92	74	...	...	325·12	...	N. W. S. W.	2	
June ...	155	...	92	74	...	...	477·52	...	N.E. S. W.N.E.	2	
July ...	162	...	92	73	...	...	139·7	...	S. W.	2	
August	160	...	92	72	...	...	121·9	...	S. W. N. E.	2	
September	158	...	92	74	...	...	457·2	...	S. W. N. E.	2	
October ...	162	...	91	74	...	...	381·0	...	N. E. S. W.	2	
November	161	...	91	73	...	...	444·5	...	N. E. S. W.	2	
December ..	164	...	93	76	...	...	139·14	...	N. E. S. W.	2	
Mean ...	157·4	...	91	74	..	...	3,226.4	...	...	2	

SHOWING THE WETTEST AND DRIEST MONTHS DURING THE SAME YEARS



ANNUAL RAINFALL

SHOWING THE ANNUAL RAINFALL IN INCHES AND MILLIMETRES SINCE 1862

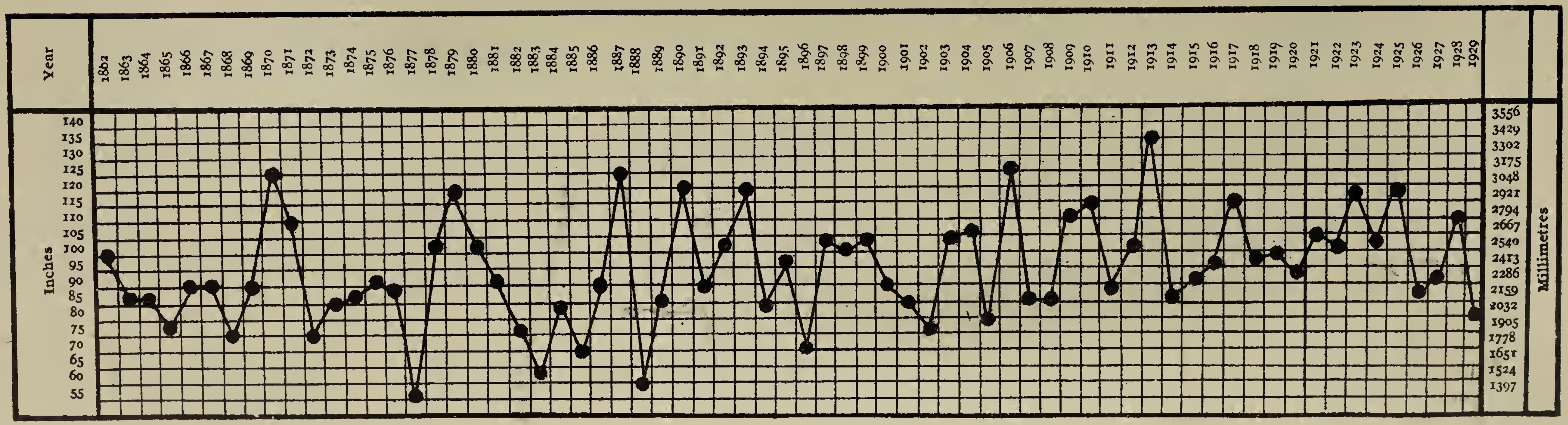


TABLE V

HOSPITALS OR INSTITUTIONS STRAITS SETTLEMENTS

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1929.

DISEASES	*Remaining in Hospital at end of 1928	YEARLY TOTAL		† Total Cases Treated	‡Remaining in Hospital at end of 1929	REMARKS
		Admissions	Deaths			
I.—EPIDEMIC, ENDEMIC, AND INFECTIOUS DISEASES						
1. Enteric Group—						
(*a*) Typhoid Fever ..	15	199	78	214	12	
(*b*) Paratyphoid A. ...	...	3	...	3	1	
(*c*) Paratyphoid B. ...	...	3	...	3	...	
(*d*) Type not defined	1	1	...	2	...	
2. Typhus	...	...	...	...	...	
3. Relapsing Fever ...	...	...	...	...	...	
4. Undulant Fever ...	...	...	...	...	...	
5. Malaria—						
(*a*) Tertian ...	35	1,675	26	1,710	58	
(*b*) Quartan ...	6	369	13	375	16	
(*c*) Aestivo-autumnal	130	5,223	516	5,353	175	
(*d*) Cachexia ...	40	777	34	817	15	
(*e*) Blackwater Fever	1	18	5	19	...	
(*f*) Unclassified ...	54	2,260	168	2,314	73	
(*g*) Mixed Infection	6	442	22	448	8	
6. Small-pox	1	19	...	20	...	
7. Measles	...	54	...	54	1	
8. Scarlet Fever ...	...	...	...	...	...	
9. Whooping Cough ...	...	9	...	9	...	
10. Diphtheria ...	...	32	8	32	...	
11. Influenza	...	518	23	518	8	
12. Miliary Fever ...	...	...	...	...	...	
13. Mumps	1	41	...	42	1	
14. Cholera	...	...	...	...	...	
15. Epidemic Diarrhœa ...	...	...	...	...	...	
16. Dysentery—						
(*a*) Amœbic ...	25	506	148	531	26	
(*b*) Bacillary ...	8	282	102	290	5	
(*c*) Undefined or due to other causes	17	329	56	346	2	
Carried forward ...	340	12,760	1,199	13,100	401	

The form shows in the main the arrangement of diseases in the *International Nomenclature, 1921 Edition*. To save space the unimportant diseases of any class can be grouped in their places as "Other Diseases" of the Class.

* *i.e.* the year previous to that for which the return is made

† "Total cases treated" will, of course, include those remaining in Hospital at the end of the previous year.

‡ The figures in this column to be carried on to the next year's Return.

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1929—*Contd.*

DISEASES	Remaining in Hospital at end of 1928	YEARLY TOTAL		Total Cases Treated	Remaining in Hospital at end of 1929	REMARKS
		Admissions	Deaths			
Brought forward ...	340	12,760	1,199	13,100	401	
I.—EPIDEMIC, ENDEMIC AND INFECTIOUS DISEASES.—*Continued*						
17. Plague—						
(*a*) Bubonic ...	...	1	1	1	...	
(*b*) Pneumonic ...	..	...	...	...	...	
(*c*) Septicæmic ...	...	..	...	...	...	
(*d*) Undefined ...	...	...	...	...	..	
18. Yellow Fever ..	...	...	...	...	...	
19. Spirochætosis Ictero-hæmorrhagica ..	..	1	...	1	...	
20. Leprosy	939	459	123	1,398	1,012	
21. Erysipelas	1	18	2	19	1	
22. Acute Poliomyelitis ...	1	2	1	3	...	
23. Encephalitis Lethargica	...	2	...	2	...	
24. Epidemic Cerebro-spinal Fever ...	...	5	2	5	...	
25. Other Epidemic Diseases—						
(*a*) Rubeola (German Measles) ...	...	4	...	4	1	
(*b*) Varicella (Chicken-pox ...	2	153	...	155	2	
(*c*) Kala-azar ...	..	...	...	...	...	
(*d*) Phlebotomus Fever ...	...	...	...	120	3	
(*e*) Dengue ...	3	117	...	3	...	
(*f*) Epidemic Dropsy	..	3	...	28	1	
(*g*) Yaws ...	1	27	...	...	...	
(*h*) Trypanosomiasis	..	...	...	...	...	
26. Glanders	..	...	...	...	...	
27. Anthrax ...	...	...	...	...	...	
28. Rabies	...	...	...	...	...	
29. Tetanus	2	53	32	55	2	
30. Mycosis	...	...	...	...	...	
31. Tuberculosis, Pulmonary and Laryngeal ...	167	1,913	910	2,080	222	
32. Tuberculosis of the Meninges or Central Nervous System ...	1	26	16	27	3	
33. Tuberculosis of the Intestines or Peritoneum	1	27	19	28	...	
34. Tuberculosis of the Vertebral Column ...	8	22	1	30	7	
Carried forward ...	1,466	15,593	2,306	17,059	1,655	

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1929—*Contd.*

DISEASES	Remaining in Hospital at end of 1928	EARLY TOTAL		Total Cases Treated	Remaining in Hospital at end of 1929	REMARKS
		Admissions	Deaths			
Brought forward ...	1,466	15,593	2,306	17,059	1,655	
I.—EPIDEMIC, ENDEMIC, AND INFECTIOUS DISEASES.—*Concluded*						
35. Tuberculosis of Bones and Joints ...	19	67	4	86	7	
36. Tuberculosis of other organs—						
(*a*) Skin or Subcutaneous Tissue (Lupus)	...	...	...	...	...	
(*b*) Bones ...	...	1	...	1	...	
(*c*) Lymphatic System	1	30	2	31	2	
(*d*) Genito-urinary ...	...	5	2	5	1	
(*e*) Other organs ...	5	9	...	14	...	
37. Tuberculosis disseminated—						
(*a*) Acute ...	...	...	...	...	...	
(*b*) Chronic ...	...	...	...	...	...	
38. Syphilis—						
(*a*) Primary ...	39	732	...	771	57	
(*b*) Secondary ...	149	1,467	8	1,616	138	
(*c*) Tertiary ...	45	265	45	310	64	
(*d*) Hereditary ...	3	22	8	25	1	
(*e*) Period not indicated ...	2	42	43	44	2	
39. Soft Chancre ...	62	584	...	646	21	
40. A.—Gonorrhœa and its complications ...	58	682	2	740	39	
B.—Gonorrhœal Ophthalmia ...	12	20	2	32	4	
C.—Gonorrhœal Arthritis	17	244	2	261	16	
D.—Granuloma Venereum	...	...	...	...	...	
41. Septicæmia ...	1	82	66	83	1	
42. Other Infectious Diseases—Trypanosomiasis ...	1	14	4	15	1	
II.—GENERAL DISEASES NOT MENTIONED ABOVE						
43. Cancer or other malignant Tumours of the Buccal Cavity ...	1	45	15	46	4	
44. Cancer or other malignant Tumours of the Stomach or Liver ...	7	92	58	99	4	
Carried forward ...	1,888	19,996	2,567	21,884	2,017	

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1929—*Contd.*

DISEASES	Remaining in Hospital at end of 1928	YEARLY TOTAL		Total Cases Treated	Remaining in Hospital at end of 1929	REMARKS
		Admissions	Deaths			
Brought forward ...	1,888	19,996	2,567	21,884	2,017	
II.—GENERAL DISEASES NOT MENTIONED ABOVE.—*Continued*						
45. Cancer or other malignant Tumours of the Peritoneum, Intestines, Rectum	2	16	10	18	1	
46. Cancer or other malignant Tumours of the Female Genital Organs	6	48	12	54	2	
47. Cancer or other malignant Tumours of the Breast	1	18	4	19	2	
48. Cancer or other malignant Tumours of the Skin	2	46	9	48	6	
49. Cancer or other malignant Tumours of Organs not Specified	1	109	17	110	6	
50. Tumours non-malignant	1	83	2	84	10	
51. Acute Rheumatism ...	4	82	...	86	8	
52. Chronic Rheumatism ...	...	67	...	67	2	
53. Scurvy (including Barlow's Disease) ...	...	1	...	1	...	
54. Pellagra	...	2	...	2	1	
55. Beri-beri	210	1,112	175	1,322	146	
56. Rickets	..	...	...	...	...	
57. Diabetes (not including Insipidus) ...	10	55	10	65	3	
58. Anæmia— ...						
(*a*) Pernicious ...	...	48	9	48	1	
(*b*) Other Anæmias and Chlorosis ...	3	68	15	71	5	
59. Diseases of the Pituitary Body ...	...	...	...		...	
60. Diseases of the Thyroid Gland—						
(*a*) Exophthalmic Goitre ...	2	10	1	12	1	
(*b*) Other diseases of the Thyroid Gland, Myxœdema	...	2	...	2	1	
61. Diseases of the Parathyroid Glands ...	...	...	...	...	...	
62. Diseases of the Thymus	...	...	...	...	...	
63. Diseases of the Suprarenal Glands ...	...	...	...	...	...	
64. Diseases of the Spleen	..	10	1	10	...	
Carried forward ...	2,130	21,773	2,832	23,903	2,212	

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1929—*Contd.*

DISEASES	Remaining in Hospital at end of 1928	YEARLY TOTAL Admissions	YEARLY TOTAL Deaths	Total cases Treated	Remaining in Hospital at end of 1929	REMARKS
Brought forward ...	2,130	21,773	2,832	23,903	2,212	
II.—GENERAL DISEASES NOT MENTIONED ABOVE.—*Concluded*						
65. Leukæmia—						
(*a*) Leukæmia ...	...	5	4	5	...	
(*b*) Hodgkin's Disease	1	7	1	8	1	
66. Alcoholism ...	...	138	...	138	2	
67. Chronic poisoning by mineral substances (lead, mercury, etc.)	...	...	...	...	...	
68. Chronic poisoning by organic substances (Morphia, Cocaine, etc.)	14	116	1	130	1	
69. Other General Diseases—	3	1,873	...	1,876	33	
Auto-intoxication ...	...	5	4	5	...	
Purpura Hæmorrhagica	...	...	...	...	...	
Hæmophilia ...	...	1	1	1	...	
Diabetes Insipidus ...	...	2	...	2	...	
III.—AFFECTIONS OF THE NERVOUS SYSTEM AND ORGANS OF THE SENSES						
70. Encephalitis (not including Encephalitis Lethargica) ...	...	2	1	2	...	
71. Meningitis (not including Tuberculous Meningitis or Cerebro-spinal Meningitis) ...	...	21	17	21	...	
72. Locomotor Ataxia ...	7	6	...	13	1	
73. Other Affections of the Spinal Cord ...	2	81	5	83	5	
74. Apoplexy—						
(*a*) Hæmorrhage ...	1	21	15	22	1	
(*b*) Embolism ...	1	2	3	3	...	
(*c*) Thrombosis ...	...	9	3	9	1	
75. Paralysis—						
(*a*) Hemiplegia ...	52	121	9	173	44	
(*b*) Other Paralyses	15	74	9	89	25	
76. General Paralysis of the Insane	11	30	21	41	18	
77. Other forms of Mental Alienation ...	1,003	737	110	1,740	1,068	
Carried forward ...	3,240	25,024	3,036	28,264	3,412	

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1929—*Contd.*

DISEASES	Remaining in Hospital at end of 1928	YEARLY TOTAL		Total Cases Treated	Remaining in Hospital at end of 1929	REMARKS
		Admissions	Deaths			
Brought forward . .	3,240	25,024	3,036	28,264	3,412	
III.—AFFECTIONS OF THE NERVOUS SYSTEM AND ORGANS OF THE SENSES.—*Continued*						
78. Epilepsy	...	61	4	61	1	
79. Eclampsia, Convulsions (non-puerperal) 5 years or over ...	...	5	1	5	...	
80. Infantile Convulsions	...	50	30	50	..	
81. Chorea	2	2	...	4	2	
82. A.—Hysteria ...	1	10	...	11	...	
B.—Neuritis ...	6	113	2	119	18	
C.—Neurasthenia ...	1	28	...	29	3	
83. Cerebral Softening ...	...	...	...	...	...	
84. Other affections of the Nervous System ...	1	39	...	40	2	
85. Affections of the Organs of Vision—						
(*a*) Diseases of the Eye ...	18	68	...	86	3	
(*b*) Conjunctivitis ...	23	388	...	411	15	
(*c*) Trachoma ...	2	46	...	48	5	
(*d*) Tumours of the Eye ...	...	23	...	23	1	
(*e*) Other affections of the Eye ...	145	622	1	767	189	
86. Affections of the Ear or Mastoid Sinus ...	4	219	6	223	8	
IV.—AFFECTIONS OF THE CIRCULATORY SYSTEM						
87. Pericarditis ...	...	21	13	21	...	
88. Endocarditis ...	...	83	44	83	2	
89. Angina Pectoris ...	...	3	1	3	1	
90. Other Diseases of the Heart—						
(*a*) Valvular—	...	98	23	98	8	
Mitral ...	4	63	22	67	13	
Aortic ...	4	68	20	72	4	
Tricuspid ...	...	...	...	...	...	
Pulmonary ...	..	...	...	...	...	
(*b*) Myocarditis ...	7	67	49	74	1	
Carried forward ..	3,458	27,101	3,252	30,559	3,688	

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1929—*Contd.*

DISEASES	Remaining in Hospital at end of 1928	YEARLY TOTAL		Total Cases Treated	Remaining in Hospital at end of 1929	REMARKS
		Admissions	Deaths			
Brought forward ...	3,458	27,101	3,252	30,559	3,688	
IV.—AFFECTIONS OF THE CIRCULATORY SYSTEM.—*Continued*						
91. Diseases of the Arteries—						
(*a*) Aneurism ...	3	23	5	26	5	
(*b*) Arterio-Sclerosis	3	30	22	33	2	
(*c*) Other diseases ...	2	3	...	5	...	
92. Embolism or Thrombosis (non-cerebral) ...	...	2	1	2	...	
93. Diseases of the Veins—						
Hæmorrhoids ...	7	194	...	201	8	
Varicose Veins ...	...	16	...	16	...	
Phlebitis	...	10	1	10	...	
94. Diseases of the Lymphatic System—						
Lymphangitis ...	...	6	...	6	...	
Lymphadenitis, Bubo (non-specific) ...	17	329	1	346	29	
95. Hæmorrhage of undetermined cause ...	...	3	...	3	...	
96. Other affections of the Circulatory System ...	...	8	7	8	...	
V.—AFFECTIONS OF THE RESPIRATORY SYSTEM						
97. Diseases of the Nasal Passages—						
Adenoids ...	1	5	...	6	1	
Polypus	1	13	...	14	2	
Rhinitis	...	18	...	18	1	
Coryza	...	86	...	86	...	
98. Affections of the Larynx—						
Laryngitis ...	1	17	...	18	1	
99. Bronchitis—						
(*a*) Acute ...	41	1,264	3	1,305	41	
(*b*) Chronic ...	50	625	7	675	41	
100. Broncho-Pneumonia ...	7	461	310	468	6	
101. Pneumonia—						
(*a*) Lobar ...	33	806	400	839	23	
(*b*) Unclassified ...	1	44	29	45	5	
102. Pleurisy, Empyema ...	11	138	23	149	4	
Carried forward ...	3,636	31,202	4,061	34,838	3,857	

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1929—*Contd.*

DISEASES	Remaining in Hospital at end of 1928	YEARLY TOTAL		Total Cases Treated	Remaining in Hospital at end of 1929	REMARKS
		Admissions	Deaths			
Brought forward ...	3,636	31,202	4,061	34,838	3,857	
V.—AFFECTIONS OF THE RESPIRATORY SYSTEM—*Continued*						
103. Congestion of the Lungs	...	...	...	...	...	
104. Gangrene of the Lungs	...	5	5	5	...	
105. Asthma	31	436	7	467	35	
106. Pulmonary Emphysema	...	8	1	8	1	
107. Other affections of the Lungs— Pulmonary Spirochætosis ...	2	45	14	47	5	
VI.—DISEASES OF THE DIGESTIVE SYSTEM						
108. A.—Diseases of Teeth or Gums— Caries, Pyorrhœa, etc. ...	3	273	1	276	2	
B.—Other affections of the Mouth—						
Stomatitis ...	1	28	...	29	...	
Glossitis, etc. ...	...	15	2	15	...	
109. Affections of the Pharynx or Tonsils—						
Tonsillitis ...	6	426	2	432	6	
Pharyngitis ...	3	87	...	90	1	
110. Affections of the Œsophagus	...	...	...	...	..	
111. A.—Ulcer of the Stomach ...	2	58	13	60	6	
B.—Ulcer of the Duodenum ...	3	79	7	82	10	
112. Other affections of the Stomach—						
Gastritis	16	269	1	285	9	
Dyspepsia, etc. ...	9	295	6	304	6	
113. Diarrhœa and Enteritis— Under two years ...	12	313	77	325	5	
114. Diarrhœa and Enteritis— Two years and over	20	618	66	638	29	
Colitis	7	102	..	109	4	
Ulceration ...	...	...	...	..	...	
114A. Sprue	2	6	...	8	..	
Carried forward ...	3,753	34,265	4,263	38,018	3,976	

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1929—*Contd.*

DISEASES	Remaining in Hospital at end of 1928	YEARLY TOTAL		Total Cases Treated	Remaining in Hospital at end of 1929	REMARKS
		Admissions	Deaths			
Brought forward ...	3,753	34,265	4,263	38,018	3,976	
VI.—DISEASES OF THE DIGESTIVE SYSTEM.—*Continued*						
115. Ankylostomiasis ...	96	2,731	63	2,827	130	
116. Diseases due to Intestinal Parasites—						
(*a*) Cestoda (Tænia)	...	11	...	11	...	
(*b*) Trematoda (Flukes) ...	...	...	..	...	...	
(*c*) Nematoda (other than Ankylostoma)—						
Ascaris ...	23	750	...	773	30	
Trichocephalus dispar ...	...	...	...	...	...	
Trichina ...	...	4	...	4	...	
Dracunculus	...	7	...	7	...	
Strongylus ...	...	...	...	...	...	
Oxyuris ...	...	...	...	...	..	
(*d*) Coccidia ...	...	...	...	...	...	
(*e*) Other parasites ...	...	...	...	...	. .	
(*f*) Unclassified ...	..	...	...	...	...	
117. Appendicitis ...	13	186	8	199	11	
118. Hernia	11	214	7	225	12	
119. A.—Affections of the Anus, Fistula, etc.	21	264	2	285	15	
B.—Other affections of the Intestines—	2	87	22	89	2	
Enteroptosis ...	...	1	...	1	...	
Constipation ...	6	156	...	162	1	
120. Acute Yellow Atrophy of the Liver ...	...	...	...	...	...	
121. Hydatid of the Liver ...	...	...	...	...	...	
122. Cirrhosis of the Liver—						
(*a*) Alcoholic ...	...	3	...	3	.	
(*b*) Other forms ...	18	218	76	236	28	
123. Biliary Calculus ...	...	2	...	2	...	
124. Other affections of the Liver—						
Abscess	4	55	7	59	1	
Hepatitis	...	53	7	53	2	
Cholecystitis, Cholangitis, etc. ...	2	46	4	48	2	
Jaundice	3	79	3	82	3	
Carried forward ..	3,952	39,132	4,462	43,084	4,213	

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1929—*Contd.*

DISEASES	Remaining in Hospital at end of 1928	YEARLY TOTAL		Total Cases Treated	Remaining in Hospital at end of 1929	REMARKS
		Admissions	Deaths			
Brought forward ...	3,952	39,132	4,462	43,084	4,213	
VI.—DISEASES OF THE DIGESTIVE SYSTEM.—*Concluded*						
125. Diseases of the Pancreas	...	2	2	2	...	
126. Peritonitis (of unknown cause)	1	63	48	64	...	
127. Other affections of the Digestive System ...	7	143	12	150	9	
VII.—DISEASES OF THE GENITO-URINARY SYSTEM (NON-VENEREAL)						
128. Acute Nephritis ...	17	282	52	299	36	
129. Chronic	58	399	172	457	25	
130. A.—Chyluria ...	...	..	..	...	...	
B.—Schistosomiasis ...	...	1	1	1	...	
131. Other affections of the Kidneys—						
Pyelitis, etc. ...	3	159	25	162	13	
132. Urinary Calculus ...	2	37	...	39	2	
133. Diseases of the Bladder—	...	11	1	11	...	
Cystitis	4	81	5	85	5	
134. Diseases of the Urethra—						
(*a*) Stricture ...	15	112	...	127	6	
(*b*) Other ...	7	275	2	282	19	
135. Diseases of the Prostate—						
Hypertrophy ...	...	2	...	2	...	
Prostatitis ...	...	9	...	9	...	
136. Diseases (non-venereal) of the Genital Organs of Man—						
Epididymitis ...	...	78	...	78	2	
Orchitis	4	96	...	100	3	
Hydrocele ...	5	106	...	111	8	
Ulcer of Penis, etc. ...	9	54	...	63	3	
137. Cysts or other non-malignant Tumours of the Ovaries ...	...	29	2	29	1	
138. Salpingitis—	1	27	...	28	...	
Abscess of the Pelvis	3	8	...	11	...	
Carried forward ...	4,088	41,106	4,784	45,194	4,345	

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1929—*Contd.*

DISEASES	Remaining in Hospital at end of 1928	YEARLY TOTAL		Total Cases Treated	Remaining in Hospital at end of 1929	REMARKS
		Admissions	Deaths			
Brought forward ...	4,088	41,106	4,784	45,194	4,345	
VII.—DISEASES OF THE GENITO-URINARY SYSTEM (NON-VENEREAL.—*Contd.*						
139. Uterine Tumours (non-malignant) ...	...	3	...	3	1	
140. Uterine Hæmorrhage (non-puerperal) ...	...	1	...	1	...	
141. A.—Metritis ...	...	4	...	4	...	
B.—Other affections of the Female Genital Organs—	...	137	2	137	6	
Displacements of Uterus ...	...	42	...	42	1	
Amenorrhœa ...	...	4	...	4	1	
Dysmenorrhœa	...	11	...	11	...	
Leucorrhœa ...	1	32	...	33	1	
142. Diseases of the Breast (non-puerperal)—						
Mastitis	...	7	...	7	...	
Abscess of Breast ..	1	5	1	6	...	
VIII.—PUERPERAL STATE						
143. A.—Normal Labour ...	93	3,480	...	3,573	84	
B. Accidents of Pregnancy— ...	...	...	...	...	2	
(*a*) Abortion ...	2	95	1	97	...	
(*b*) Ectopic Gestation ...	...	22	2	22	...	
(*c*) Other accidents of Pregnancy	1	352	3	353	...	
144. Puerperal Hæmorrhage	...	54	8	54	...	
145. Other accidents of Parturition ..	...	173	9	173	1	
146. Puerperal Septicæmia	...	52	27	52	...	
147. Phlegmasia Dolens ...	...	2	1	2	...	
148. Puerperal Eclampsia ...	...	39	9	39	...	
149. Sequelæ of Labour ...	...	12	2	12	...	
150. Puerperal affections of the Breast ...	...	52	...	52	...	
IX.—AFFECTIONS OF THE SKIN AND CELLULAR TISSUES						
151. Gangrene	2	25	5	27	2	
Carried forward ...	4,188	45,710	4,854	49,898	4,444	

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1929—*Contd.*

DISEASES	Remaining in Hospital at end of 1928	YEARLY TOTAL		Total Cases Treated	Remaining in Hospital at end of 1929	REMARKS
		Admissions	Deaths			
Brought forward ...	4,188	45,710	4,854	49,898	4,444	
IX.—AFFECTIONS OF THE SKIN AND CELLULAR TISSUES —*Continued*						
152. Boil—	2	97	4	99	2	
Carbuncle ...	1	47	...	48	1	
153. Abscess—	46	1,202	4	1,248	45	
Whitlow	...	67	...	67	..	
Cellulitis	20	384	33	404	26	
154. A.—Tinea ...	2	50	...	52	2	
B.—Scabies ...	26	517	...	543	17	
155. Other Diseases of the Skin—	21	319	2	340	19	
Erythema ...	...	...	...	...	...	
Urticaria	...	24	...	24	2	
Eczema	24	322	...	346	13	
Herpes	...	22	...	22	1	
Psoriasis	1	14	...	15	1	
Elephantiasis ...	2	30	...	32	7	
Myiasis	...	...	...	...	...	
Chigoes	...	...	...	...	...	
Cutaneous Leishmaniasis ...	...	...	...	...	...	
Ulcers	279	3,715	12	3,994	254	
X.—DISEASES OF BONES AND ORGANS OF LOCOMOTION (OTHER THAN TUBERCULOUS)						
156. Diseases of Bones— Osteitis	...	30	...	30	2	
157. Diseases of Joints ...	...	...	...	...	...	
Arthritis	39	260	1	299	18	
Synovitis	7	50	...	57	2	
158. Other Diseases of Bones or Organs of Locomotion	12	240	5	252	14	
XI.—MALFORMATIONS						
159. Malformations—						
Hydrocephalus ...	2	5	5	7	...	
Hypospadias ...	...	3	...	3	...	
Spina Bifida, etc. ...	2	13	1	15	1	
Carried forward ..	4,674	53,121	4,921	57,795	4,871	

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1929—*Contd.*

DISEASES	Remaining in Hospital at end of 1928	YEARLY TOTAL		Total Cases Treated	Remaining in Hospital at end of 1929	REMARKS
		Admissions	Deaths			
Brought forward ...	4,674	53,121	4,921	57,795	4,871	
XII.—DISEASES OF INFANCY						
160. Congenital Debility ...	...	...	...	...	...	
161. Premature Birth ...	...	12	7	12	...	
162. Other affections of Infancy	...	23	10	23	...	
163. Infant neglect (infants of three months or over)	...	1	...	1	...	
XIII.—AFFECTIONS OF OLD AGE						
164. Senility	38	282	59	320	60	
Senile Dementia ...	...	...	...	...		
XIV.—AFFECTIONS PRODUCED BY EXTERNAL CAUSES						
165. Suicide by Poisoning ...	...	1	1	1	...	
166. Corrosive Poisoning (intentional) ...	...	11	7	11	...	
167. Suicide by Gas Poisoning	...	..	..	...	...	
168. Suicide by Hanging or Strangulation ...	...	8	8	8	...	
169. Suicide by Drowning ...	...	1	1	1	...	
170. Suicide by Firearms ...	...	...	...	. .	...	
171. Suicide by cutting or stabbing Instruments	..	...	...	...	...	
172. Suicide by jumping from a height ..	...	...	...	...	...	
173. Suicide by crushing ...	...	...	...	...	...	
174. Other Suicides ...	...	...	...	...	...	
175. Food Poisoning ...	...	12	...	12	...	
Botulism ...	1	1	...	2	...	
176. Attacks of poisonous animals--						
Snake bite ...	...	22	1	22	...	
Insect bite ...	...	20	...	20	...	
177. Other accidental poisonings ...	...	37	7	37	...	
178. Burns (by Fire) ...	5	144	7	149	7	
179. Burns (other than by Fire)	5	152	8	157	5	
180. Suffocation (accidental)	...	...	...	..	...	
181. Poisoning by Gas (accidental)	...	1	...	1	...	
182. Drowning (accidental)	...	7	...	7	1	
Carried forward ...	4,723	53,856	5,037	58,579	4,944	

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1929—*Contd.*

DISEASES	Remaining in Hospital at end of 1928	YEARLY TOTAL		Total Cases Treated	Remaining in Hospital at end of 1929	REMARKS
		Admissions	Deaths			
Brought forward ...	4,723	53,856	5,037	58,579	4,944	
XIV.—AFFECTIONS PRODUCED BY EXTERNAL CAUSES. —*Continued*						
183. Wounds (by Firearms, war excepted) ...	3	31	5	34	...	
184. Wounds (by cutting or stabbing Instruments)	17	1,001	12	1,018	36	
185. Wounds (by Fall) ...	38	1,252	5	1,290	43	
186. Wounds (in Mines or Quarries) ...	1	15	..	16	...	
187. Wounds (by Machinery)	2	219	10	221	6	
188. Wounds (crushing, *e.g.* railway accidents, &c.)	30	1,079	49	1,109	17	
189. Injuries inflicted by Animals, Bites, Kicks, &c..	8	77	...	85	1	
190. Wounds inflicted on Active Service ...	...	...	..	...	..	
191. Executions of civilians by belligerents ...	...	...	...	..	...	
192. A.—Over fatigue ..	1	103	...	104	2	
B.—Hunger or Thirst	...	1	. .	1	...	
193. Exposure to Cold, Frost bite, &c ..	...	...	...	...	...	
194. Exposure to Heat— Heatstroke ..	1	1	1	2	..	
Sunstroke ...	. .	1	...	1	...	
195. Lightning Stroke ...	. .	...	...	...	...	
196. Electric Shock ...	..	4	...	4	...	
197. Murder by Firearms ..	...	...	...	...	...	
198. Murder by cutting or stabbing Instruments	...	...	...	...	...	
199. Murder by other means	...	...	...	...	..	
200. Infanticide (Murder of an infant under one year)	...	...	...	...	...	
201. A.—Dislocation ...	3	51	...	54	4	
B.—Sprain ..	3	135	...	138	4	
C.—Fracture ...	92	938	35	1,030	95	
202. Other external injuries	23	1,032	46	1,055	53	
203. Deaths by Violence of unknown cause ..	...	...	...	...	...	
Carried forward ..	4,945	59,796	5,200	64,741	5,205	

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1929—*Concluded.*

DISEASES	Remaining in Hospital at end of 1928	YEARLY TOTAL		Total Cases Treated	Remaining in Hospital at end of 1929	REMARKS
		Admissions	Deaths			
Brought forward ...	4,945	59,796	5,200	64,741	5,205	
XV.—ILL-DEFINED DISEASES						
204. Sudden Death (cause unknown) ...	...	...	...	...		
205. A.—Diseases not already specified or ill-defined—	27	2,160	75	2,187	44	
Ascites ...	1	2	...	3	...	
Œdema ...	..	...	...	...	..	
Asthenia, Marasmus, etc.	2	42	32	44	2	
Shock ...	..	17	...	17	...	
Pyrexia of uncertain Origin	12	2,112	17	2,124	58	
B.—Malingering ...	3	191	...	194	9	
XVI.—DISEASES, THE TOTAL OF WHICH HAVE NOT CAUSED 10 DEATHS ...	...	...	...	...	...	
Total ..	4,990	64,320	5,324	69,310	5,318	